

UNIV. OF
TORONTO
LIBRARY



THE OPHTHALMIC RECORD

A Monthly Review of the Progress
of Ophthalmology

EDITED BY

- | | |
|--|---|
| CASEY A. WOOD, M. D.,
Chicago, Ill. | G. C. SAVGE, M. D.,
Nashville, Tenn. |
| GEO. E. DE SCHWEINITZ, M. D.,
Philadelphia, Pa. | JOHN E. WEEKS, M. D.,
New York, N. Y. |
| EDWARD JACKSON, M. D.,
Denver, Colo. | H. V. WÜRDEMANN, M. D.,
Seattle, Wash. |
| W. E. HOPKINS, M. D.,
San Francisco, Cal. | HAROLD GIFFORD, M. D.,
Omaha, Neb. |
| FRANK ALLPORT, M. D., CHICAGO, ILL. | |

THOMAS HALL SHASTID,
EDITORIAL SECRETARY,
MARION, ILLINOIS.

COLLABORATORS

- | | |
|---|---|
| FRANCIS VALK, M. D.,
New York | F. B. EATON, M. D.,
Corvallis, Ore. |
| E. C. ELLETT, M. D.,
Memphis, Tenn. | C. DEVEREUX MARSHALL, F. R. C. S.,
London, England |
| BROWN PUSEY, M. D.,
Chicago | W. GORDON M. BYERS, M. D.,
Montreal, Canada |
| FRANK BRAWLEY, M. D.,
Chicago | F. A. DAVIS, M. D.,
Denver, Colo. |
| CHARLES H. BEARD, M. D.,
Chicago | MELVILLE BLACK, M. D.,
Denver, Colo. |
| WM. DUDLEY HALL, M. D.,
Boston, Mass. | ROBERT L. RANDOLPH, M. D.,
Baltimore, Md. |
| EDWARD STIEREN, M. D.,
Pittsburgh, Pa. | CLARENCE A. VEASEY, M. D.,
Spokane, Wash. |
| E. A. SHUMWAY, M. D.,
Philadelphia, Pa. | JAMES W. BARRETT, M. D.,
Melbourne, Australia |
| FRANK C. TODD, M. D.,
Minneapolis, Minn. | NELSON MILES BLACK, M. D.,
Milwaukee |

409018
16.12.42

INDEX TO VOLUME XXII, NEW SERIES

JANUARY TO DECEMBER, 1913.

CONTRIBUTORS TO VOLUME XXII.

- Allport, Frank, Chicago, Illinois.
Black, Nelson M., Milwaukee, Wis.
Blake, E. M., New Haven, Conn.
Bordley, Jr., James, Baltimore, Md.
Bradburne, A. A., Manchester, England.
Brav, Aaron, Philadelphia, Pa.
Brown, Samuel Horton, Philadelphia, Pa.
Buchtel, Frost C., Denver, Colorado.
Calhoun, F. Phinizy, Atlanta, Ga.
Chance, Burton M., Philadelphia, Pa.
Clapp, C. A., Baltimore, Md.
Clark, I. G., Columbus, Ohio.
Crigler, L. W., New York City.
Crisp, William H., Denver, Colo.
Fisher, W. A., Chicago, Illinois.
Good, James W., Winnipeg, Manitoba.
Gradle, Harry S., Chicago, Illinois.
Harrison, W. H., Browning, Mont.
Holdsworth, F., Traverse City, Mich.
Holloway, T. B., Philadelphia, Pa.
Ide, Clarence Edward, Los Angeles, Cal.
Lamb, Robert Scott, Washington, D. C.
La Mothe, E. A., Chicago, Illinois.
Lewis, F. Park, Buffalo, N. Y.
Mathewson, George H., Montreal, Canada.
McAllister, J. C., Ridgway, Pa.
McKee, S. Hanford, Montreal, Canada.
Mitchell, S., Hornell, N. Y.
Muncaster, S. B., Washington, D. C.
Newcomb, John Ray, Indianapolis, Indiana.
Posey, Wm. Campbell, Philadelphia, Pa.
Reeder, D. F., Ancon, Canal Zone, Panama.
Reese, Robert G., New York City.
Rhoads, John Neely, Philadelphia, Pa.
Rochester, Alexander, Chicago, Ill.
Simpson, W. Likely, Memphis, Tenn.
Spratt, Charles Nelson, Minneapolis, Minn.
Stevenson, Mark D., Akron, Ohio.
Stieren, Edward, Pittsburgh, Pa.
Vaughn, F. A., Milwaukee, Wis.
Veasey, C. A., Spokane, Wash.
Verhoeff, F. H., Boston, Mass.
Weidler, Walter Baer, New York City.
Williams, Carl, Philadelphia, Pa.
Wood, Douglas, Minneapolis, Minn.
Würdemann, H. V., Seattle, Wash.
Wyler, Jesse S., Cincinnati, Ohio.
Young, H. B., Burlington, Iowa.

INDEX

A	Page		Page
Abscess of the Lachrymal Sac in a Child One Month Old.....	544	Cerebello-Pontine Tumor, A Case of	138
Allport, Frank. 14, 175, 296, 423, 546		Cellulitis Caused by Staphylococci. Orbital.....	413
Anesthesia, Enucleation Under Ciliary Ganglion	302	Chance, Burton M.....	1
Aniridia; Ectopia Lentis; Pathological Cupping of the Discs. Complete Bilateral.....	540	Children at Moorfields, The Care of School.....	599
Atrophy Caused by Uterine Hemorrhage, A Case of.....	358	Children, Protection of the Eyes of School.....	59
Atrophy of the Choroid, A Case of Unusual.....	1	Choroid, A Case of Unusual Atrophy of the.....	1
Atrophy of the Optic Nerve Following the Injection of Olive Oil and Lanolin for the Removal of Wrinkles.....	11	Ciliary Ganglion Anesthesia, Enucleation Under.....	302
Attachments for Electric Hand Lamps, Some Simple.....	298	Clamp. U Shaped Hemostatic Lid	84
		Clapp, C. A.....	79
B		Clark, I. G.....	647
Basin, A New Irrigation.....	647	Conjunctiva, A Case of Pemphigus of the.....	545
Bilateral Aniridia; Ectopia Lentis; Pathological Cupping of the Discs, Complete.....	540	Conjunctiva, Concerning Dermoids and Dermo-Lipomas of the	291
Black, Nelson M.....	59, 135	Conjunctival Bridge, Cataract Extraction with	645
Blake, E. M.....	419	Conservation of Vision at the Twelfth International Congress of Ophthalmology	527
Blindness, Two Cases of Snow.....	352	Conservation of Vision, Commission on the: Report of the Chairman	703
Book Notices.....	57, 115, 231, 286, 347, 531, 599, 699,	Corneae, Dystrophia Epithelialis	131
Bordley, jr., James.....	545	Correspondence	111, 343
Bradburne, A. A.....	538	Crigler, L. W.	603
Brav, Aaron	299	Crisp, William H.....	3
Bridge, Cataract Extraction with Conjunctival	645	Cross-Cylinder Holders, Two New	353
Brown, Samuel Horton.....	599	Cupping of the Discs, Complete Bilateral Aniridia; Ectopia Lentis; Pathological.....	540
Buchtel, Frost C.....	75	Cylinder Holders, Two New Cross	353
Burn, Cacodylate of Sodium in a Case of Kerato-Iritis Due to Lime	546		
Burn of Eyeball Due to Caustic Contents of Golf Ball.....	603	D	
		Degree of Doctor of Ophthalmology, Examination for.....	653
C		Degree in Ophthalmology, The..	111
Cacodylate of Sodium in a Case of Kerato-Iritis Due to Lime Burn	546	Dental Irritation, Orbital and Ocular Neuralgia Due to.....	652
Calhoun, F. Phinzy.....	358	Dentistry and Optometry. A Parallel	3
Capsule After Cataract Operations, A Method of Dealing with the.....	184	Dermoids and Dermo-Lipomas of the Conjunctiva, Concerning	291
Capsule Forceps, A.....	85	Discs, Complete Bilateral Aniridia; Ectopia Lentis; Pathological Cupping of the.....	540
Capsule, The Implantation of Fat in Tenon's.....	596	Dislocation of Both Lenses Into the Vitreous, Report of Case of Spontaneous	539
Cataract After the Method of Professor Stancleanu, The Intra-Capsular Operation for....	241	Dystrophia Epithelialis Corneae	131
Cataract Extraction with Conjunctival Bridge.....	645		
Cataract Operations, A Method of Dealing with the Capsule after	184	E	
Cataract, Unusual Types of Punctate	407	Ectopia; Lentis; Pathological Cupping of the Discs, Complete Bilateral Aniridia.....	540
Catarrh, A Case of Spring.....	349		

	Page		Page
Electric Hand Lamps, Some Simple Attachments for.....	298	Hospitals, The Needs of the Eye, Ear, Nose and Throat Surgeon in General.....	175
Electric Perimeter, A Practical..	135	I	
Elevator, Lid.....	646	Ide, Clarence Edward.....	651
Enucleated Eye; Only One Piece Being Found by the X-Ray. A Case of Injury in Which Six Pieces of Steel Were Discovered in an.....	14	Implantation of Fat in Tenon's Capsule, The.....	596
Enucleation Under Ciliary Ganglion Anesthesia.....	302	Intra-Capsular Operation for Cataract After the Method of Professor Stanceanu.....	241
Epithelialis Corneae, Dystrophia	131	Iridium, Heterochromia.....	361
Examination for Degree of Doctor of Ophthalmology.....	653	Iris After the Use of Salvarsan, A Case of Gumma of the.....	299
Exophthalmos, A Case of Pulsating	294, 543	Iritis Due to Lime Burn; Cacodylate of Sodium in a Case of Kerato	546
Exophthalmos with a Case Report. The Treatment of Pulsating	75	Irrigation Basin, A New.....	647
Eye and Orbit, Management of Foreign Bodies in the.....	533	K	
Eyeball Due to Caustic Contents of Golf Ball, Burn of.....	603	Keratitis, Infectious Suppurative	117
Eye-Strain. A Reflecting Book Marker for Teaching Readers How to Avoid.....	416	Kerato-Iritis Due to Lime Burn, Cacodylate of Sodium in a Case of	546
Eye Strain. An Analytical Consideration of the Symptoms, with Special Reference to Those Symptoms Cited to the General Practitioner.....	233	L	
Eye Unconsciously Injured.....	245	Lachrymal Sac in a Child One Month Old, Abscess of the....	544
F		Lamb, Robert Scott.....	645
Facial Nerve, An Early Sign of Paresis of the.....	421	La Mothe, E. A.....	117
Fat in Tenon's Capsule, The Implantation of.....	596	Lamps, Some Simple Attachments for Electric Hand.....	298
Fisher, W. A.....	11, 646	Lanolin for the Removal of Wrinkles. Atrophy of the Optic Nerve Following the Injection of Olive Oil and.....	11
Fixation Forceps	423	Lenses into the Vitreous, Report of a Case of Spontaneous Dislocation of Both.....	539
Forceps. A Capsule.....	85	Lentis; Pathological Cupping of the Discs, Complete Bilateral Aniridia; Ectopia.....	540
Foreign Bodies in the Eye and Orbit, The Management of....	533	Lewis, F. Park.....	527, 583
G		Lid Elevator.....	646
Ganglion Anesthesia, Enucleation Under Ciliary.....	302	Lipomas of the Conjunctiva, Concerning Dermoids and Dermo	291
Glaucoma	15	M	
Golf Ball, Burn of Eyeball Due to Caustic Contents of.....	603	Macula, Hole at the.....	79, 538
Good, James W.....	15	Macular Retina, A Hitherto Undescribed Anomaly of the....	591
Gradle, Harry S.....	85, 343, 591	Magnetic Steel in the Vitreous, A Case of Non-.....	296
Green, D. W., In Memoriam.....	605	Marker for Teaching Readers How to Avoid Eye-Strain, A Reflecting Book.....	416
Gumma of the Iris After the Use of Salvarsan, A Case of.....	299	Mathewson, George H.....	294, 352, 543
H		McAllister, J. C.....	539
Harrison, W. H.....	649	McKee, H., Hanford.....	349
Hemorrhage, A Case of Optic Atrophy Caused by Uterine..	358	Mitchell, S.....	245
Hemostatic Lid Clamp, U Shaped	84	Moorfields, The Care of School Children at.....	599
Heterochromia Iridium	361	Mules Operation, Sarcoma of the Orbit Following	422
Holdsworth, E.	544	Muncaster, S. B.....	413
Holloway, T. B.....	407, 540		

N	Page
Nerve, An Early Sign of Paresis of the Facial.....	421
Neuralgia Due to Dental Irritation, Orbital and Ocular.....	652
Newcomb, John Ray.....	233
News Items.....	54, 113, 169, 229, 287, 344, 400, 528, 586, 642, 694,
Nurses for Ophthalmia Neonatorum Cases, State.....	753 583

O

Ocular Neuralgia Due to Dental Irritation, Orbital and.....	652
Olive Oil and Lanolin for the Removal of Wrinkles, Atrophy of the Optic Nerve Following the Injection of.....	11
Ophthalmic Practice—Preparation for	524
Ophthalmology, Examination for Degree of Doctor of.....	653
Optic Atrophy Caused by Uterine Hemorrhage, A Case of....	358
Optic Nerve Following Injection of Olive Oil and Lanolin for the Removal of Wrinkles, Atrophy of the.....	11
Optometry; A Parallel. Dentistry and	3
Orbital Osteoma, A Huge.....	419
Orbital and Ocular Neuralgia Due to Dental Irritation.....	652
Orbital Cellulitis Caused by Staphylococci	413
Orbit Following Mules Operation, Sarcoma of the.....	422
Orbit, The Management of Foreign Bodies in the Eye and..	533
Orbit, Report of a Case of Sarcoma of the.....	651
Osteoma, A Huge Orbital.....	419

P

Paresis of the Facial Nerve, An Early Sign of.....	421
Pemphigus of the Conjunctiva, A Case of.....	544
Perimeter, A Practical Electric..	135
Posey, Wm. Campbell.....	703
Practitioner, An Analytical Consideration of the Symptoms of Eye Strain with Special Reference to Those Symptoms Cited to the General.....	233
Publicity from the Specialist's Standpoint, Proper and Improper Methods of.....	300
Pulsating Exophthalmos with a Report of Case, The Treatment of	75, 294, 543
Punctate Cataract, Unusual Types of	407

R	Page
Railway and Traction Services, and the Protection of the Eyes of Workmen in Large Shops. Visual Requirements in.....	709
Reeder, D. F.....	184
Reese, Robert G.....	131
Reflecting Book Marker for Teaching Readers How to Avoid Eye-Strain, A.....	416
Retina, A Hitherto Undescribed Anomaly of the Macular.....	591
Rhoads, John Neely.....	353, 416
Rochester, Alexander ...	296, 421, 546

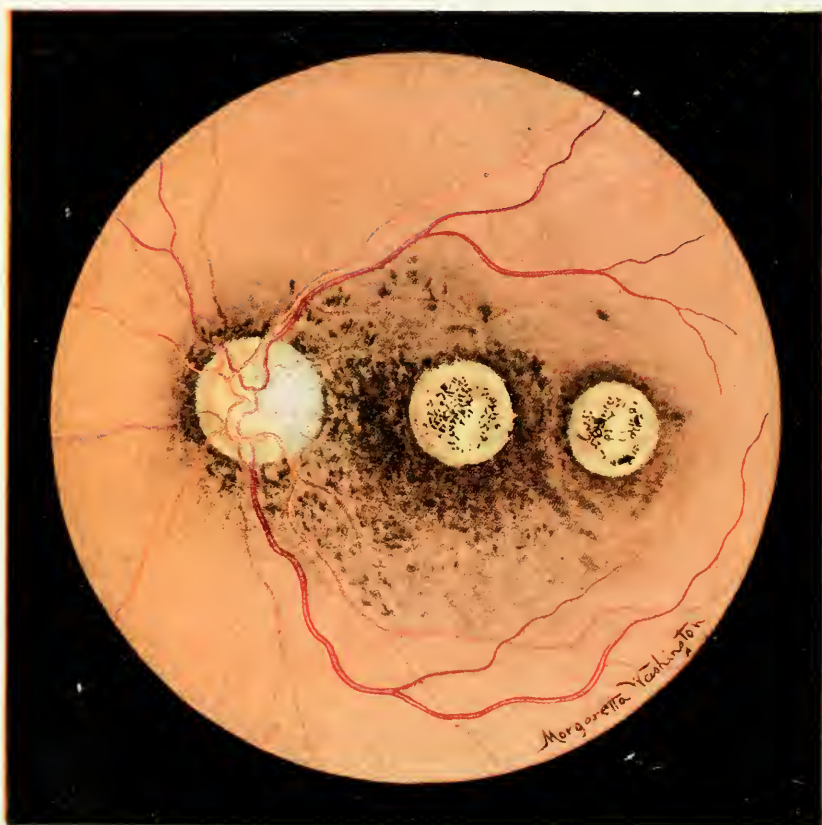
S

Salvarsan, A Case of Gumma of the Iris After the Use of.....	299
Sarcoma of the Orbit, Report of a Case of.....	651
Sarcoma of the Orbit Following Mules Operation.....	422
School Children at Moorhells, The Care of.....	599
School Children, Protection of the Eyes of.....	59
Simpson, W. Likely.....	241
Snow-Blindness, Two Cases of..	352

SOCIETY REPORTS.

American Academy of Ophthalmology and Oto-Laryngology, Abstract of Papers and Discussions before the Eighteenth Annual Meeting, Chattanooga, Tenn., October 27, 28, 29, 1913. To be continued.....	739
American Medical Association, Ophthalmic Section, Minneapolis.....	397, 469, 548, 606
American Ophthalmological Society	323, 366
Berlin Ophthalmological Society	306, 380
Canadian Medical Association, Ophthalmic Section.....	16
Chicago Ophthalmological Society.....	42, 187, 248, 664, 677
Colorado Ophthalmological Society.....	20, 86, 142, 195, 257, 318
College of Physicians of Philadelphia.....	146, 263, 382
Conference of Teachers of Ophthalmology on Preparation for Ophthalmic Practice, Minneapolis	428
Maryland, Medical and Chirurgical Faculty of, Section of Ophthalmology, October 15th, 1913	732
Minnesota Academy of Ophthalmology and Oto-Laryngology, 261	

	Page		Page
Philadelphia Polyclinic Ophthalmic Society.....	37, 106, 163, 212, 272	Trachoma Among the Indians of the Northern United States and Canada. Existence and Prevalence of.....	649
Portland Ophthalmological and Oto-Laryngological Society.....	29, 34, 205, 208, 280	Tumor, A Case of Cerebello-Pontine	138
Royal Society of Medicine.....	91, 154, 217, 308, 364, 684, 687	U	
St. Louis Medical Society, Ophthalmic Section.....	94, 222, 391, 424, 632	U Shaped Hemostatic Lid Clamp	84
Wills Hospital Ophthalmic Society.....	25, 100, 156, 202, 655, 659	Uterine Hemorrhage, A Case of Optic Atrophy Caused by.....	358
Sodium in a Case of Kerato-Iritis Due to Lime Burn. Cacodylate of	544	V	
Specialist's Standpoint, Proper and Improper Methods of Publicity from the.....	300	Vaughn, F. A.....	59
Spratt, Charles Nelson.....	596	Veasey, C. A.....	138
Spring Catarrh, A Case of.....	349	Verhoeff, F. H.....	298
Stancleann, The Intra-Capsular Operation for Cataract After the Method of Professor.....	241	Vision, Commission on the Conservation: Report of the Chairman	703
Staphylococci, Orbital Cellulitis Caused by.....	413	Visual Requirements in Railway and Traction Services; and the Protection of the Eyes of Workmen in Large Shops.....	709
Stevenson, Mark D.....	84	Vitreous, A Case of Non-Magnetic Steel in the.....	296
Steel in the Vitreous, A Case of Non-Magnetic	296	Vitreous, Report of Case of Spontaneous Dislocation of Both Lenses into the.....	539
Steel Were Discovered in an Enucleated Eye; Only one Piece Being Found by the X-Ray. A Case of Injury in Which Six Pieces of.....	14	W	
Stieren, Edward	533	Weidler, Walter Baer.....	291
Strain, A Reflecting Book Marker for Teaching Readers How to Avoid Eye.....	416	Williams, Carl.....	361
Strain with Special Reference to Those Symptoms Cited to the General Practitioner, An Analytical Consideration of the Symptoms of Eye.....	233	Wood, Douglas.....	422
Surgeon in General Hospitals, The Needs of the Eye, Ear, Nose and Throat.....	175	Wrinkles, Atrophy of the Optic Nerve Following the Injection of Olive Oil and Lanolin for the Removal of.....	11
T		Würdemann, H. V.....	300, 652
Tenon's Capsule, The Implantation of Fat in.....	596	Wyler, Jesse S.....	302
		X	
		X-Ray. A Case of Injury in which Six Pieces of Steel were Discovered in an Enucleated Eye; Only One Piece Being Found by the.....	14
		Y	
		Young, H. B.....	111



Unusual Atrophy of the Choroid. —Barton Chance.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXII

CHICAGO, JANUARY, 1913

No. 1, New Series

ORIGINAL ARTICLES

A CASE OF UNUSUAL ATROPHY OF THE CHOROID.*

WITH COLORED PLATE.

By BURTON CHANCE, M. D.

PHILADELPHIA.

The patient presenting the subject of this brief communication, is a Russian, 30 years old, a tailor by occupation, but before coming to America about three years ago, he had served in the Russian army. He came to the Wills Hospital in June last because of a stubborn though mild conjunctivitis, of that type we have all seen so commonly among the sweat-shop workers. He did not complain of his sight, yet he was aware that he could not see as well with the left eye as with the right. The visual acuity of the right equaled 6-12, but with the left he could count fingers at three feet only.

Ophthalmoscopically, the right fundus was normal and quite healthy, but the left showed two singularly distinct and marked areas of choroidal atrophy of a character I could not remember having seen before. At first sight it was almost as though there were three papillae in the fundus, so sharply circumscribed were the abnormal disks, and so much on a line with the optic nerve head, with which they nearly corresponded in size. The entire fundus showed attenuation of the choroido-retinal sheet and, except within the span of the great vessels in the temporal half, much less pigmentation than in the right eye. In that region there was extensive proliferation of the pigment. The optic disk was large though somewhat atrophic, with a rather broad excavation extending deeply to the lamina which was greenish and stippled.

At about a diameter from the disk was a sharply outlined circular area of complete choroidal atrophy and at nearly one

*Presented in abstract before the Wills Hospital Ophthalmic Society, October 8, 1912, from the service of Dr. Schwenk

diameter to the outerside of this area there was another nearly as large and equally as sharp-cut and circular. The smaller area was on a somewhat lower plane than the other, and involved the macula; over the upper border the macular depression shone like the glow above the horizon at early sunrise.

These disks were defined by dark, narrow lines, and on the scleral surfaces there were clumps of uveal pigment arranged somewhat like karyokinitic figures. The choroidal atrophy was complete—the sclera shining with a pearly lustre. There was not a sign of any of the choroidal vessels within either area; nor was the scleral sheet ectatic.

The general arrangement of the intraocular vessels was normal: the large trunks were inclined to be tortuous, and, except for the presence of a fine, elevated fawn-colored spot near the larger disk, there were no other signs of disease observed; nor were there other structural irregularities present. The iris was well formed and manifested all of the normal reactions.

It is quite probable that the patient has already been shown elsewhere, for the man stated that while he was in the Russian army his case excited comment among the medical officers of his corps.

So striking a picture as this I had not seen before, and it is difficult to explain the origin of the condition. The "disks" cannot be likened to "holes" at the macula, and I can hardly believe that they are the remains of attacks of choroiditis in recent years. Neither am I willing to class them among the colobomata, not because of their unusual position—the inferior section of the fundus was perfectly formed and healthy—for I have known of colobomata occupying the horizontal meridian of the globe. It is true the excessive pigmentation and thickening in the temporal region reminded me of certain other cases I had seen of incomplete colobomata of the choroid in which the deposit of pigment outlined or distinguished the raphé formed by the union of the two edges of the folded layer of the optic vesicle.* On the contrary, I regard them to have been produced either as the result of choroiditis in late foetal or very early infantile life. It is not unlikely that the areas were formed by emboli invading the choriocapillaris in these regions.

*Chance:—Total Coloboma of the optic disk without affection of the choroid, &c., &c. *Am. Medicine* Vol. VIII—No. 14 P. 595. October 1, 1904.

This case presents one of the vagaries of pathologic processes. It is unusual to find such complete loss of the choroid without there being other signs of inflammation or of degeneration dispersed more or less throughout the fundus. And it is singular that there should have been such pronounced changes of structure in the left eye, while, as far as it could be studied, there were no signs of disease in the right.

235 South 13th Street.

DENTISTRY AND OPTOMETRY; A PARALLEL.

By WILLIAM H. CRISP, M. D.

DENVER, COLORADO.

If we may judge from some recent statements by Mr. C. F. Prentice, M. E., we are soon to witness the birth of a new profession.

Mr. Prentice is president of the New York State Board of Examiners in Optometry. It is probably due more to his efforts than to those of any other one man that there are now twenty-seven states of this union which license the practice of optometry. The latest state to adopt such a law is Massachusetts, where on June 1st an optometry bill was signed by Governor Foss. At a recent optical gathering Mr. Prentice delivered himself of the following candid opinion: "I now unreservedly state my personal conviction that the public will receive the best eye service from practitioners who shall have in the future collegiately qualified in both optometry and medicine."

It was Mr. Prentice who uttered the epigram that "a lens is not a pill," and who has so emphatically argued that the practice of refraction could not be regarded as the practice of medicine. Hence his apparent change of front has given rise to a good deal of excitement in the optical trade journals. In replying to some critics Mr. Prentice urges that the retrogressives shall "not irretrievably stay the logical evolution of optometry to higher ophthalmic practice." He also quotes the following sentence from a letter which he addressed to Governor Foss in support of the Massachusetts bill: "It is my belief that optometrists in this state will follow the policy of . . . later raising the standard of education so as to include a partial if not full knowledge of medicine among future practitioners."

Mr. Prentice clearly contemplates the organization of a

profession whose status shall be as distinct, important and honorable as that of medicine, dentistry, or the law. He realizes that this cannot be accomplished without requiring that those following such a profession shall receive a full educational equipment for understanding and diagnosing diseases of the eye.

Many of Mr. Prentice's optical friends have already stated that they consider the completer education suggested by him to be unnecessary. It goes without saying that the medical profession will be practically unanimous in regarding these proposals as objectionable. Ophthalmologists especially are likely to be rather ready to dismiss Mr. Prentice's suggestions as impossible of fulfillment. But many even more unlikely ideas have been realized. It is certain that the optometry laws adopted in the twenty-seven states will not retain their present form for ever.

Governors of various states whose legislatures have passed optometry bills have offered a variety of opinions as to their validity. One of the most interesting of these is that of Governor Hughes. In the memorandum by which he announced his approval of the New York optometry bill are included the following comments: "Objections have been urged to giving legal recognition to the practice in question; but the fact remains that the practice exists and will continue, and unquestionably it forms a proper subject for regulation."

If the practice of optometry is to be regulated, we must expect that pressure will constantly be brought to bear for raising the standard of education required of those who are allowed to practice under optometry laws. Already examinations under these laws include the following subjects: Theoretic, practical, and physiologic optics, theoretic and practical optometry, anatomy and physiology of the eye. In spite of the contention of optometrists that the use of drops is unnecessary, it would be risky to assert that many years will pass before a vigorous attempt is made to allow refracting opticians to employ cycloplegics. Columbia University already gives a two years' optical course. A Philadelphia optical school has recently announced that in future it will require a two years' course of study for its diploma. The Massachusetts act specifically mentions a two years' course of study in an optical college as an alternative requirement for candidates for examination.

There are many medical men still practising whose original medical training was limited to two years in a medical college. Since they graduated the length of the medical course has been increased first to three and then to four years. It seems not at all improbable that the tendency of the better class of men in the optical associations will be to propose similar improvements in standard, which of course would run side by side with the increased state requirements.

The medical fraternity is no doubt prepared to give battle to any such tendencies, and many arguments can be advanced to show that such tendencies would not be for the public good. It is to be feared that the medical profession is somewhat disposed, like the ostrich, to bury its head in the sand in order to avoid realization of the truth. We are apt to forget that human society and its institutions have never reached and never will reach a state of fossilization, in which a change of form shall be no longer possible. The treatment of human ailments, whether it be known as medicine, surgery, dentistry, or optometry, is no exception to this statement.

The most important function of the study of history is to direct our judgment with regard to the future. The events of the past most nearly related to the problem with which we are dealing appear to have been those which surrounded the establishment of dentistry as a recognized profession. A brief review of a few of these facts may therefore prove profitable.

Let us bear in mind that in spite of its close kinship with general medicine and surgery, dentistry is now taught in separate schools and practised by a distinct group of professional men.

A knowledge of dentistry existed as far back as the time of Hippocrates, four or five centuries B. C. The practice of the art was then included in general medicine and surgery. From the time of Abucalsis, who in the tenth century of our era described the process by which artificial crowns were attached to adjacent teeth, various physicians and surgeons of repute studied and wrote upon the subject of dentistry. In 1582 Urbain Hémar, surgeon to a French cardinal, published his "Researches upon the anatomy of the teeth, their nature and properties." Fauchard's celebrated work entitled "*Le chirurgien dentiste ou traité des dents*," published in 1728, contains the following statement as to the status of dental art and science in those days: "The most celebrated surgeons

having abandoned this branch of surgery, or having but little cultivated it, their neglect gave rise to a class of persons who, without theoretic knowledge, and without being qualified, practised it at hazard, having neither principle nor system."

In Great Britain the nineteenth century furnishes a list of famous names of surgeons who interested themselves in the advancement of dental science. Dr. Blake's work on the anatomy of the teeth was published in 1801. One of the first members of the medical profession to devote himself exclusively to dentistry was Joseph Fox. He was succeeded as lecturer in Guy's Hospital on the structure and diseases of the teeth by Thomas Bell, who in 1829 issued a well-known work on the subject. During the century much was done, particularly by men of orthodox medical and surgical training, to establish the interconnection of diseases of the teeth with general pathologic conditions; and dentistry came to be practised by the better class of men as a specialty of medicine.

In this country the month of June, 1839, saw the publication of the first periodical in the world exclusively devoted to dentistry. Among the founders of this journal was one Chapin A. Harris, an M. D. of orthodox qualification and standing. Harris had an older friend named Horace H. Hayden, who in 1837 had been granted the honorary degree of M. D. by the Jefferson Medical College of Philadelphia and by the University of Maryland. Harris and Hayden wished to organize a dental training school as an adjunct to the medical department of the University of Maryland, but their overtures were rejected by the faculty, who justified this action by declaring "that the subject of dentistry was of little consequence." The result was that in 1840, after a good deal of opposition from medical quarters, these two surgeon-dentists were instrumental in obtaining from the Maryland legislature a charter for incorporation of the "Baltimore College of Dental Surgery." Several other medical men were associated with Harris and Hayden on the dental faculty. This was the first college in the world established for the systematic training of dentists.

Since that time the curriculum of study preparatory to dental practice has been systematically increased until it now includes the fundamental principles of medical training with the addition of those technical subjects which are peculiar to dentistry. The dental educational institutions of Europe and the United States may now be fairly regarded as based

on the conception that dentistry is a department of general medicine.

It is interesting to read concerning the causes which led to the founding of the Baltimore College of Dental Surgery, that, "although the study of diseases of the teeth should have formed part of the physician's education, the medical schools gave practically no instruction pertaining to this subject." Who will venture to contend that the following paraphrase of this remark would be inaccurate concerning the present day: "Although the study of errors of refraction should form part of the physician's education, the medical schools give practically no instruction pertaining to this subject?"

Schools of dentistry came into existence because the public demand and need for dental work was not being met by the general medical organizations. In view of the neglect by medical schools of another department of medicine, is it very unlikely that, as Mr. Prentice is bold enough to suggest, the public will recognize its needs in the matter of refraction by constantly improving the legal and the educational status of the optometrist?

Donders' epoch-making work on refraction was published in English in 1864. In the 48 years which have passed since then the public demand for the correction of refractive errors has enormously increased. It is practically certain that that demand could not be supplied solely by the labors of ophthalmologists at present practising.

Most ophthalmologists recognize that there exists an optometry question, and that the "question" must sooner or later receive some sort of answer. A few of them have published their opinions in the medical press. But few of these writers have suggested any real solution of the problem. Their views have usually taken the form of criticisms of the agitation by non-medical refractionists for legal recognition. Some of these criticisms suggest a striking parallelism between the situation which now exists with regard to refraction, and that which existed seventy-five years ago with regard to dentistry.

We are told that refraction is and always has been in the hands of the medical profession; and in the best sense this is no doubt true. The finer work of refraction has unquestionably been developed by original research on the part of medical scientists. But the same was perfectly true with regard to dentistry, which was advanced by the labors of such

men as Fauchard, Blake, Fox, and Bell, already mentioned.

In the same way it is argued that optometry is but a subdivision of ophthalmology, and the latter in turn a division of general medicine. Hence we are asked why optometrists should not qualify before state boards of medical examiners; and further whether it would be proper for the state to divide the science of medicine into many parts, and establish separate opportunities of examination and registration for each part. It is perfectly obvious that the same questions might with equal propriety have been asked in connection with the recognition of dentistry as a separate profession. And let us note as regards the last part of the question, that state boards of medical examiners have not so far established any "opportunities of examination and registration" specifically bearing on ability to practice refraction; and on the other hand that some optometry organizations are offering to submit those who wish to practise refraction, outside the medical profession, to a test to which refracting physicians are not subjected.

Protest is made against the argument of optometrists that they do not trespass on the field of medicine. It is perfectly true that the practice of refraction is the practice of medicine, but to no greater extent than is and always was true of the practice of dentistry.

Objection is also taken to the fact that optometry schools advertise courses in the anatomy, physiology, and pathology of the eye. But this tendency is just as natural and inevitable as was the tendency of the earlier dental schools to interest themselves more and more thoroughly in similar subjects as related to the mouth and teeth.

Optometrists are accused of seeking by their legislation to make a short cut into the practice of medicine. Perhaps they do. But perhaps legislation regarding the practice of dentistry was at one time under a similar accusation. It takes even now in most instances less time to become a dentist than to become a physician; but although some men study dentistry and then take up medicine, and others reverse the process, do we now regard the study of dentistry as an attempted short cut into the practice of medicine? And there is another and perhaps rather effective retort which the optometrists might offer to this "short cut" criticism. It is to the effect that some physicians seek a short cut to the practice of ophthalmology and refraction, and perhaps at the same time to the

surgery of the ear, nose, and throat, by taking a six weeks' post-graduate course; and that the law puts no ban upon their so doing, however ridiculous and at the same time dangerous such action may be.

To appreciate what may be the outcome of the present struggle between optometrists and ophthalmologists, we must view the whole matter, not from the standpoint of the medical profession or of our own specialty, but from the standpoint of the general public. The plain fact of the case is that somebody has got to do the public's refraction work, just as somebody has got to do its plumbing, or its legal advising, or its electrical engineering, or its dentistry. Sooner or later the public will demand some guarantee that the man who undertakes to perform such work has the necessary training and skill. The public will not for ever be satisfied either with a medical degree which in no way refers to the work in question, or with a non-medical diploma which is of doubtful credibility. But few refractionists either in England or the United States, either in the medical ranks or among the optometrists, are able to furnish such reliable assurance. Registration under optometry laws does not at present offer a satisfactory exception to this statement, for many men are licensed because they have already commenced practice. It would of course be ridiculous to claim that the degree of M. D. furnishes any such guarantee.

It is impossible to form any definite opinion as to what will be the outcome, say a century hence, of this whole difficult question. It is much more possible than some of us realize that there will exist at that time a branch of medicine as distinct in all its aspects and relations as is that of dentistry in our own time. But if medical men generally, and ophthalmologists in particular, are persuaded that it is to their interest as well as to the public interest to maintain an intimate association between general medicine and refraction, even let us say between general medicine and ophthalmology, there are at least two roads along which they may help this aim. One may be described as ante-graduate specialization, with the offering either of a special degree or of some indication that the ordinary degree includes such studies. The other way, and the one to which most attention has so far been given, is to provide special post-graduate courses leading to examination for a supplementary degree.

The latter step was taken two years ago by the University

of Oxford, England, and a year ago by the University of Liverpool, England; and the summer of 1912 witnessed the establishment of a similar course in the University of Colorado. This method is good so far as it affects those who have already graduated with the regular diploma of M. D., and who wish to establish their credentials as ophthalmologists. But it may be a matter for dispute whether some better means might not be found for educating at least a part of those who will some day practise ophthalmology but who have not yet received any medical diploma.

The suggestion of "ante-graduate specialization," of course, corresponds in a general way to the proposals which have at various times been put forward, rather vaguely, for elective courses in the medical schools. Such proposals have generally succeeded in arousing something like a storm of protest. It is apparently considered that the medical course is and must remain for ever "one and indivisible." No matter how many hundreds of pages may be added to the Gray's anatomy which some of us knew as a volume of about a thousand pages, the student must be quizzed on the whole volume. Whatever multiple improvements are made in laboratory diagnosis, they must be taught in large part to men who will never have time to employ more than a small percentage of them.

We are apparently trying to act on the assumption that any man or woman who graduates from a medical college may at some time be called upon single handed to diagnose and treat any one of the maladies to which any part of the human body is subject. But we forget the limitations of time, and of the capacity of the average human mind for acquiring and retaining accurate knowledge. We also fail to allow for the waste of human effort involved in the acquisition of a vast amount of information which will probably never be made use of. Moreover, in the struggle of individual branches for ampler recognition, it inevitably happens that some one section is neglected at the expense of others; and this is what has happened to ophthalmology.

We are warned not to forget the intellectual training which results from such studies as anatomy, however completely the details may ultimately be forgotten. But what especial value as an intellectual training can be found in an intricate study of the forms, sizes, and relations to one another and with other structures of the small bones of the foot; or in memoriz-

ing the exact diameters of the female pelvis? Or in what regard is such information more stimulating than a study of exact refraction, or of the processes of atrophy in the optic tracts, or of the delicate balance maintained by the extraocular muscles? Why should one who expects to spend the rest of his life in observing diseases of the eye be bothered with a complete mastering of human osteology, or of the details of a gastro-intestinal anastomosis, or of an operation for piles? It is worth remembering also that in the crowded effort to cover the whole field of anatomy the student who has already made up his mind to practise ophthalmology is prevented from that intimate study of brain anatomy which would be especially valuable to him in connection with diseases of the optic tracts and centers.

There is essentially no more reason against ante-graduate specialization in medicine, or in other words against elective courses, than there is against the custom by which mechanical, civil, and electrical engineers now take their first two years in the same classes, although after two further years of specialized studies they will receive different diplomas and follow different branches of engineering.

Ophthalmologists must not merely be prepared to supply the needs of the public. Unless they wish to see their professional status usurped by a group of men whose preliminary education and ethical principles will generally speaking be vastly inferior to their own, they must display a reasonable willingness to establish some criterion by which their title to the position they hold may be confirmed. Especially in the matter of refraction, ophthalmologists can at present base their claims upon no such definite criterion. The sooner they remedy this omission, the more successful will be the resistance which they can offer to the agitation for optometry legislation; or at least the more efficient will be the safeguards, both in the public interest and as regards their own rights, which they will be able to secure wherever such legislation is enacted.

ATROPHY OF THE OPTIC NERVE FOLLOWING INJECTION OF OLIVE OIL AND LANOLINE FOR THE REMOVAL OF WRINKLES.

W. A. FISHER, M. D.

CHICAGO.

The case following is one of atrophy of the optic nerve of the left eye. It presented itself in my clinic at the Chicago

Eye, Ear, Nose and Throat College with a history of loss of sight as a result of an injection of olive oil and lanoline. The history of the case is this: Equal parts of olive oil and lanoline were injected under the skin June 20, 1912, for the removal of a wrinkle or frown between the eyes, no irritation occurring after this injection. August 8, 1912, about seven weeks after the first injection a second one of the same kind was given which produced so great a reaction, that the patient was unable to leave the doctor's office until four hours after the injection. The patient says she felt as if the lower eye lid were being closed or pushed up and a great deal of swelling around the point of injection. She first noticed the loss of vision five days after the injection, and from that time the blindness was complete. The swelling at the point of injection persisted about two weeks, but the feeling that the lower lid was being pushed up lasted only several days. The patient says that there was much swelling on the inner side of the unaffected eye, inner canthus feeling like a cord, but there was no swelling of the left side. When she observed the loss of vision of the left eye she also noticed a swelling of the inside of the right eye.

One might infer from the suddenness of the attack that the case was one of acute retrobulbar neuritis since these may end in blindness within a few days or even in a few hours. In some cases of retrobulbar neuritis the vision soon returns, the patient can again count fingers and the central scotoma reappears. Complete restoration of sight may take place or the patient may have $\frac{1}{4}$ or $\frac{1}{3}$ of the normal vision. In acute retrobulbar neuritis it often happens that the papilla becomes completely atrophied the disc being pale and the blood vessels becoming contracted and patients remain blind. The conditions are such in my case. As a rule the accompanying connective tissue bands are not broad and the lamina cribosa is generally not exposed. In such cases the amaurosis is permanent. According to Elschnig and Graefe amblyopia remains when the changes develop quickly. When the amblyopia is accompanied by choked disc, great loss of vision will result. In my case it cannot be determined whether choked disc was present at the beginning or not. The pathological investigations in a case of retrobulbar neuritis ("Elschnig") show that we are dealing with a preliminary interstitial neuritis. In his case throughout the whole cross section the entire length of the nerve, extensive infiltration of fat granular cells took place adjoining

the nerve fibres. As a secondary manifestation explaining the visual disturbance of glia-tissue, multiplication of round and spindle shaped cells are found. The highest degree of this inflammatory infiltration is reached in the optic canal.

Blows upon the face have been reported without any serious visible injury with manifestations of traumatic neurosis and have been followed by atrophy of the optic nerve. In shot wounds above the eye complete blindness occurs even though the optic nerve remains uninjured. I recall a case in consultation with Dr. D. A. K. Steele in which a boy while skating fell and was struck above the eye by a fellow skater. There was no great outward manifestation of injury, but the vitreous was clouded by hemorrhages. Loss of vision was instantaneous and complete and the patient remained blind. There was no perception or projection and I gave an unfavorable prognosis. Dr. Casey Wood in consultation agreed with me regarding the prognosis and as it was not encouraging the family had the late Dr. Hotz called in and he took a more favorable view of the case. He was retained in the case with me and we watched the case for several months, but the vision did not return. In Norris and Oliver vol. 3, page 626, vomiting is given as a cause of atrophy of the optic nerve. If this were a common cause, optic atrophy would be very common. The usual causes of atrophy of the optic nerve are familiar enough, but few oculists have observed cases of atrophy that have followed the causes that are given as unusual.

Many physicians have probably injected paraffin, lanoline and olive oil for cosmetic purposes with varying degrees of success, but have never seen a case of optic atrophy following such an injection. It is quite possible that some of the fluid injected into the forehead might pass into the orbital cavity and cause pressure upon the optic nerve and the inflammation and oedema might extend to the optic nerve. In some individuals the walls of the ethmoid cells and the sphenoidal sinus are so thin, that slight pressure might break the partition and the injected material would pass from one cell to another and finally make pressure upon the optic nerve. There might also be a congenital opening or debris-cencc of these cells or some disease might have left a perforation. It is not likely that this occurs frequently, but we find cases of optic neuritis on one side, with some orbital disease as the cause which sometimes may be traced to the ethmoid cells and sphenoidal sinuses.

There are some cases of optic atrophy due to suppurative diseases of the ethmoid and sphenoid sinus and frontal sinusitis may pass to the orbital cells of the ethmoid and cause pressure on the optic nerve. Since we know that the optic canal may lie within the sphenoid sinus and the posterior ethmoidal cells we should be on the lookout for disease of the sinuses when we have unilateral optic neuritis. When injections are made near the orbit for cosmetic effect, pressure should be made at the inner side of the orbit at the time of the injection and for some time afterwards. Injected material should not be of too high a temperature. The condition of the eyes now are as follows: The right fundus is perfectly normal, the vision 20/20, and the fields are normal. The left eye presents a picture of optic atrophy. The pupil of the left eye does not contract when the light is thrown into it, but does contract when light is thrown into the right eye. The nerve head is white, the edges are sharply cut and well defined and the arteries are contracted; other than this the ophthalmoscopic findings are normal. Six months previous to the loss of sight an oculist prescribed glasses and found 20/20 in each eye.

*Read at the meeting of the Chicago Ophthalmological Society October 21 1912.

A CASE OF INJURY IN WHICH SIX PIECES OF STEEL WERE DISCOVERED IN AN ENUCLE- ATED EYE; ONLY ONE PIECE BEING FOUND BY THE X-RAY.

By FRANK ALLPORT, M. D.

CHICAGO.

W. T., machinist, age 22, was struck October 29th in the right eye by a piece of steel, flying off from a nut which was struck by a companion while using a hammer and chisel. A wide opening through the sclero-corneal junction was made, lacerating the cornea, sclera, iris, lens, etc. An X-ray picture showed one large piece of steel.

October 31st the eye was removed and six pieces of steel, large and small, were removed from the vitreous chamber. Drs. Brawley, Rochester, and the St. Luke's Hospital staff and nurses were present and counted the pieces as they came out. The case is reported as being unique, concerning the numbr of pieces found, and also because the X-ray picture only showed the largest piece.

Query. Did the six pieces fly into the eye at one time through the one opening, or did one piece enter the eye and then break up into six pieces? Would all six pieces have left the eye under the influence of the giant magnet?

GLAUCOMA.

BY JAMES W. GOOD, M. D.

WINNIPEG, CANADA.

Dr. Good defined glaucoma according to Priestly Smith as an excessive pressure within the eye, plus the causes and consequences of that excess. In spite of many years of study even the anatomy of the eye in its relation to the cause of plus tension is still an unsettled matter. Henderson contends that a thickened sclerosed pectinate ligament block the escape of fluid from the vitreous chamber to the anterior chamber thus causing increased tension. As the lens gradually enlarges throughout life everyone who lives long enough will have glaucoma. Another unsettled question is the effect obtained by iridectomy whether it merely opens Schlemm's canal or increases the absorptive area of the iris. After all theories are discussed and all opinions considered we still do not understand glaucoma. In treatment of acute glaucoma eserine alone or combined with dionin is used if an immediate reduction of tension is not obtained a large iridectomy is performed. In chronic types of glaucoma sclerotomy or trephining the cornea combined with an iridectomy. The filtering cicatrix made by removing a section of cornea or sclera from one lip of an iridectomy incision according to Lagrange and covering with a previously prepared flap. Trephining frequently relieves painful fluid eyes though many require excision.

The tonometer should be used as a routine. Other diagnostic points are taken up chiefly with a view to instructing the general practitioner. The most important findings are the fields of vision and the tonometer readings.

REPORTS OF SOCIETIES

OPHTHALMIC SECTION CANADIAN MEDICAL ASSOCIATION.

Edmonton, August 12, 1912.

Mr. President and Gentlemen:—

I have chosen glaucoma and its treatment as the subject of this paper, because glaucoma is a very serious and rather common disease, and hence of great practical importance. A great many people go blind every year from glaucoma, many of whom could have been cured by early recognition of the disease, followed by prompt and suitable treatment. I am not laboring under the delusion that I can impart much fresh information, but I do indulge the hope that the discussion of the subject may elicit some new view from others, of a practical nature, especially regarding the successful treatment. What is glaucoma? The best definition I have ever seen is that of Priestley Smith, who defines it as an excessive pressure within the eye, plus the causes and the consequences of that excess. The consequences of this pressure are well known. Concerning its causes, there would still seem to be much room for speculation and discussion, chiefly, however, of an academic nature. This conflict of opinion extends even to the anatomy of the eye itself. One would think, for instance, by this time the structure of Schlem's canal would be well known. But with regard even to this Mr. Harold Parsons and Mr. Thomas Henderson disagree. The former stating that the canal is held constantly open by its walls being firmly adhered to the surrounding rigid sclerotic, while the latter says that it is a venous sinus or channel lying free and attached or anchored only by its tributary veins, so that there exists between it and the rigid sclerotic channel a potential space, capable indeed of injection by fluids containing pigments such as Indian ink. About the pectineal ligament there is also now a difference of opinion. Some, I dare say most authorities, treat of it as a structure derived from the splitting of the peripheral part of Descemet's membrane, while the new school regard it as derived from the innermost lamellae of the fibres of the cornea proper, continuing backwards and being really nothing more than an open part of the sclero-corneal envelope, consisting of an interlacing network, the continual sclerosis of which from youth to age constitutes

the starting point of glaucoma. In early life its open web allows the aqueous free access to Schlem's canal and the supra-choroidal space, but in old age it becomes converted into a hard fibrous structure, the meshes of which have all been closed and through which filtration can no longer take place. This condition of the pectineal ligament, Mr. Henderson says, is the true cause of glaucoma, and all the other subsequent changes are dependent on and simply a consequence of this and not in any way the true cause of the disease. Glaucoma is more common in hypermetropic eyes, in which the iris and ciliary muscles are thick and well developed, and in which its function is continuously called into play, not only for purposes of accommodation for near, but also for distant vision as well. We know also that as age advances the lens (being an epithelial product) continuously increases in size as long as life lasts, being the only structure in the whole body which has this peculiarity, so that, if one live long enough he is bound to get glaucoma sooner or later. By the older authors the iris is looked upon simply as a diaphragm, regulating the amount of light which is received into the pupil, but in the newer school it is looked upon also as an absorbing surface, this being effected by what is known as Fuchs' crypts, situated chiefly near the pupillary and the peripheral portions of the iris; hence arises a divergence of opinion as to the mode in which an iridectomy brings about the cure of glaucoma. Those who hold that the cause of glaucoma is simply due to blocking of the iritic angle would also hold that the removal of the iris from this angle would allow the aqueous to get free access to Schlem's canal, thus effecting its ultimate removal from the eye. Others point out, however, that as wounds in the iris never heal, but remain constantly open, even years after their infliction, the whole cut surface should be regarded as an increased absorbing surface through which the aqueous is first absorbed and then transmitted by means of the iris veins to Schlem's canal, and to the supra-choroidal space. The sides and the base of the coloboma they would regard as being equivalent to a largely increased number of crypts and they consider that the only advantage of a larger iridectomy over a small one to be due to the fact that in its performance the whole circumference of the iris is dragged upon, small lacerations being thus produced in its structure, which also never healing further opens up its stroma, increasing enormously its absorbing surface.

Time will not permit one to go into all the intricate theories of glaucoma, but with regard to the reason of the changes causing glaucoma a few questions may be asked. Were one to ask why that part of the sclerotic forming the pectineal or cribriform ligament scleroses with the advance of years, some would answer "because, as the point of origin of the ciliary muscles, it is in almost constant action, and the reason its scleroses more in hypermetropes is because in them accommodative efforts are more energetic and more often called into play." But how does it happen, we ask, that in vast numbers of highly hypermetropic people no symptoms of glaucoma ever occur. Again, how does it happen that glaucoma sometimes occurs in myopic subjects and even in children, in which no sclerosis can theoretically at least have taken place. Some there are who attribute it to general high blood pressure, producing high intra-cranial and according to them high intra-ocular pressure, with all its usual consequences. Where there are so many views held and so much discussion indulged in and so much written about the remote causes of any disease, we may safely assume that nobody really knows. There are certain things we do know, however, which will produce it in those predisposed to this disease, one of which is the free use of atropine in people past middle life. This drug is very often not used when it should be, but is too often used in cases in which it is entirely unnecessary and highly dangerous. This does not apply to Canada alone, but to other countries as well. In the supplies used by the Indian Medical Service, it is quite common at the end of the year to find the atropine all used up and the esserine supply unopened. Anything which obliterates the iritic angle will cause glaucoma. It may be due to the presence of a swollen lens, or of a lens dislocated into the anterior chamber, or of a lens swollen by traumatism, blocking the angle by pressure. The cause is immaterial, if it blocks the angle, it will cause glaucoma. Now, what is the best remedy? First, esserine or pilocarpine should be used in acute or sub-acute glaucoma previous to operative measures, and should be continuously used in cases of simple, chronic glaucoma which refuse to be operated upon. In acute glaucoma, after an attempt is made to reduce the pressure by means of esserine or pilocarpine, possibly combined with dionin, by far the best procedure is to make, and make without delay, a large classical iridectomy. Where the tension cannot be reduced by drugs it can sometimes

be reduced by tapping the anterior chamber and shortly afterwards performing the operation. Or again, it may be reduced by making an opening into the sclerotic, thus evacuating a portion of the vitreous body. I have, however, been somewhat disappointed in this latter procedure because I have not found the anterior chamber to become much deeper after the evacuation of a portion of the vitreous than before, and then the operation has been still difficult to perform, although the tension was reduced. In sub-acute glaucoma, as well as in chronic inflammatory glaucoma, the best treatment, in my opinion, is a sclerectomy coupled with an iridectomy, or trephining of the cornea with an iridectomy. In simple chronic non-inflammatory glaucoma, especially where the tension is not high, the sclero-cornea should be trephined and through this opening the iris should be snipped, or a small iridectomy made. Of course, previously, a flap of conjunctiva and cornea should have been turned down and subsequently sutured into place. In all cases where the irit angle is blocked and the iris atrophied one cannot expect an iridectomy to do any good unless a sub-conjunctival filtering cicatrix is established. This can be done by the operation of LeGrange, by the operation of Herbert, or by the operation of Major Elliott, which consists of a trephining with or without an iridectomy.

There is a small number of cases of simple glaucoma in feeble and aged people, which can be carried along for years with very slight deterioration of vision by the constant use of miotics, without the performance of any operation, whatever. Buphthalmus should be treated by trephining and a small iridectomy, the trephining, if necessary, being done in more places than one. How should we treat blind glaucomatous painful eyes? Well, a number must be excised. Some can be retained by trephining; and establishing a sub-conjunctival filtering cicatrix. In another contingent enucleation may be rendered unnecessary by raising a flap of conjunctiva from the margin of the cornea extending outwards and downwards for seven or eight millimetres and at a distance of six millimetres, introducing a cataract knife into the vitreous with the edge directed away from the cornea, and before withdrawing it, turning it at right angles, thus enlarging the wound as the knife is withdrawn. The conjunctival flap should then be stitched back into place and the bandage applied.

Finally, in the estimation of tension, in cases of simple

chronic glaucoma, it is of great advantage to use the tenometer of Javal-Shiötz. By its use it will be often discovered that the tension, if not high, at least varies from time to time, sometimes being at and sometimes below the normal standard. In these cases we must assume that what is normal in other people is for them relatively high and when it is highest, the vision is worst and the field of vision most contracted.

I cannot go at length into the subject of secondary glaucoma. The conditions causing it being numerous and often accidental, have to be treated as they arise and according to the indications present. For instance, if due to accidental trauma, or to needling of a lens, increased tension can be remedied by evacuating a portion of the whole of the lens matter. If exclusion of the pupil be present this may be remedied by an iridectomy.

Lastly, and perhaps most important of all, is diagnosis, and what I say now is chiefly for the use of the general practitioner. Without a diagnosis no treatment should be adopted. This requires some moral force, but is really the only proper stand to take. One should, however, always remember that, instead of being a rare disease, glaucoma is very common after the age of forty. It may be some help to know the diseases for which acute or sub-acute glaucoma is commonly mistaken. In my experience these are firstly, iritis; secondly, neuralgia of the eye, with vomiting, or what is often called a bilious attack. Thirdly, rheumatism; fourthly, cataract; simple chronic glaucoma is often mistaken for optic atrophy. The most important thing of all is to take the tension and the field of vision. The cupping of the disc, the pulsation of the vessels may be invisible, owing to cloudiness of the media, but the tension and the field of vision can still be taken, and where the tension even is normal the field of vision will be most important in the diagnosis.

COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF NOVEMBER 16, 1912.

DR. DAVID H. COOVER, PRESIDING.

Corneal Staphyloma.

Dr. D. A. Strickler presented a case of corneal staphyloma in a child of five months, due to ophthalmia neonatorum beginning eight days after birth. The parents were free from gonorrheal infection, but it had been found that the grand-

mother, who had acted as nurse, had a gonorrheal cystitis. One eye only had become infected. Section of the cornea had been done in the hope of saving the eye, and there had been no prolapse of the iris. The family physician asked for suggestions as to future treatment. A pressure bandage had been tried, but the eye was increasing in size.

DISCUSSION. Dr. Ringle thought the iris involved, that the staphyloma would increase, and that it was a case for enucleation.

Dr. Walker would try to clear up the cornea with a view to slight chance of future optical iridectomy.

Dr. Bane suggested trying to establish drainage, and trephining was mentioned. Dr. Coover had trephined in a case of staphyloma, entering the vitreous, with some escape of vitreous. The cornea became flat.

Dr. Jackson. If the eye did not become decidedly worse it would be better not to interfere for two or three years, so as to favor normal development of the orbit. Pressure was not likely to help, and if great might cause the cornea to break down. He had never seen any good result from iridectomy after ophthalmia neonatorum.

Hyalitis with Probable Chorioretinitis.

Dr. D. A. Strickler presented a woman who had consulted him four days ago on account of rapid loss of vision in the right eye. Vision had been reduced to shadows. At first there was no fundus reflex, there was a ground glass appearance of the cornea, and tension was definitely increased, but the pupil was rather smaller than that of the other eye. There was a faint pericorneal flush. She had had no pain. The maternal grandfather and grandmother had both died of tuberculosis. She had been under treatment two years earlier for blurred vision, and had at that time floating opacities in the vitreous and an obscuring of the fundus details for some time. The left eye showed choroidal atrophy close to the disc, with a good deal of pigmentation. Today there was a decided fundus reflex in the right eye, and floating opacities could be well made out in the vitreous. No fundus details could be recognized, but there was seen indistinctly a large white area. The tension of this eye with the Gradle tonometer was R 52, L 25 mm. Hg.

DISCUSSION. Dr. Libby mentioned the case of a woman of 64 years, seen by him during the past week, whose general physician reported that, having found the tension increased, he had used atropin to reduce it!

Dr. Walker thought Dr. Strickler's case one of cyclitis or choroiditis in which increase of tension was caused by blocking of the excretory channels by inflammatory products.

Dr. Jackson suggested that the white space or mass indistinctly seen in the fundus pointed to a choroiditis. As bearing on the hazy cornea and increased tension, he described a case recently seen by him, of probable tubercular nature, in which glaucomatous symptoms had occurred. Two years ago, the young woman, who then lived in Pittsburgh, had a similar attack, the cause of which was not clearly understood, but which left a good deal of choroidal atrophy and pigment right at the macula. A month or so ago she noticed that the central scotoma had increased in size. The retina and vitreous were hazy, but this had cleared up, and there was now a new spot of partial atrophy by the old one, the retina apparently being also affected. Von Pirquet test was positive. At the same time there was a probable tubercular disturbance of the great toe. Shortly after the diminution of vision was noticed, the tension was $+1$, and with the Gradle-Schiötz tonometer 50 or 60 millimeters Hg. and the pupil was a little dilated. A miotic brought the pupil down and reduced the tension, which was now normal. The lesion was going on to a condition of choroidal atrophy. Dr. Jackson suggested the use of pilocarpin in Dr. Strickler's case.

Dr. Hosmer thought the detailed pattern of the iris was a little indistinct.

Acute Conjunctivitis? Trachoma.

Dr. D. A. Strickler presented a man of 23 years, who had been suffering from a severe conjunctival disturbance. There had been extreme photophobia, a copious gush of tears every time the lids were separated, severe pains often preventing sleep, injection and swelling of the lids, and a crescentic, rather deep, and clear cut ulcer at the sclerocorneal margin. There was a slight clouding of the upper part of the cornea. The ulcer had been scraped and afterwards burned. A smear from the scraping showed only a few diplococci and staphylococci. Atropin had given great relief, the photophobia was less. The tears did not seem to be stained with pus. Was there any probability of a diagnosis of trachoma in the case?

DISCUSSION. Dr. Jackson thought it looked as though it might be an early acute trachoma. The tears often washed away more mucopurulent material than was realized.

Dr. Hosmer suggested the use of solid sulphate of atropin on account of the difficulty of dilating the pupil in the presence of so much lacerimation.

In reply to a question by Dr. Bane, Dr. Strickler stated that there was very general congestion of the interior of the nose.

Dr. Monaghan thought constitutional treatment indicated.

Dr. Crisp referred to a case in which marked edema of the lids had for some time masked the diagnostic signs of an acute trachoma. There was profuse seropurulent discharge, and there were small corneal ulcers near the limbus. The patient was kept awake a good deal at night by the pain.

Dr. Coover would use one or two per cent ichthyol in the form of an ointment.

Dr. Ringle stated that in conjunctival affections complicated by corneal ulceration he employed two per cent silver nitrate, neutralizing with salt solution.

Dr. Walker. When there was no lid trouble he had had the most gratifying results from touching the ulcerated surface, after cleansing, with nitrate of silver once daily, in two per cent solution. He thought it the ideal treatment.

Loss of Sight in Infancy without Apparent Cause.

Dr. Conant reported the case of a child of four years, in one of whose eyes vision was entirely lost, probably from an early panophthalmitis, the iris and cornea being in apposition; and the vision of whose second eye was now failing. The child could make out a 2-inch object at about eight feet. The microscope did not show any gross lesions. The field of vision of the seeing eye seemed entirely external, so that the child always looked across its nose. There was no history of any eye trouble in the family, except that an older brother showed scars of choroiditis.

Dr. Walker was reminded of a case in which the sight the second eye had begun to fail without apparent cause. The first eye, which had had an ulcer originally, had now no perception of light, and its enucleation was advised. On removal the whole choroid was found to have turned to a bony formation, and the lens was stony hard. No further complaint was made of the second eye. It was apparently a case of sympathetic irritation, and Dr. Conant's case might be due to a similar degenerative condition.

Dr. Coover suggested the use of the X-ray to investigate possible sinus involvement.

Dacryocystitis Neglected Twenty Years: Prompt Cure by Simple Irrigation.

Dr. G. F. Libby reported the case of a man who for twenty years had been regularly squeezing out the pus which collected in a diseased lacrimal sac. For the past two weeks the condition had been treated by simple washing of the sac and subsequent filling with 25 per cent argyrol solution, and at the time of reporting the discharge had entirely ceased. The punctum had been gradually dilated with a Ferguson's dilator, without slitting the canaliculus. The argyrol solution now passed through into the nose. The argyrol was not used until 24 hours after the punctum was dilated, because of the possible risk of staining the deep tissues.

Dislocation of Lens by Needle.

Dr. J. W. Lehan reported the case of a boy whose eye had been injured by a needle three or four months ago. The pupil was displaced upward and inward, and the lens cataractous, and dislocated, partly into the anterior chamber. There was some light perception, and the eye was soft.

DISCUSSION. Dr. Ringle thought that the lens ought to be extracted.

Dr. Walker referred to a case in which, the lens being dislocated upward, the corneal incision was made below, and successful extraction done with a vectus.

Cataract Extraction in Case of Paralysis Agitans.

Dr. C. A. Ringle reported the case of a farmer aged fifty-eight, who came on account of bilateral cataract which had reduced vision to light perception, but who at the same time was suffering from paralysis agitans. In spite of the poor vision, the cataracts were immature. The eyes appeared to be otherwise normal, but examination was made extremely difficult by the marked muscular tremor produced on attempting to hold the eyes open. On account of the usual objections to general anesthesia in cataract extraction, the first attempt at removal of the lens was made after administration of a quarter of a grain of morphine and a hundredth of hyoscin hypodermically. The muscular tremor and spasm were apparently quieted and the patient was sound asleep soon after getting on the operating table. But when spoken to he would arouse and would turn his eyes in any required direction. The eye was cocaineized, the speculum inserted without resistance, and iridec-tomy and capsulotomy performed without incident. But as

the spoon and spatula were being taken in hand, there was a sudden gush of fluid vitreous down the cheek. At the command to keep still and not squeeze the eye, there were repeated spasms of the orbicularis. The speculum was at once removed, and, as the slightest disturbance caused the patient to squeeze the eye shut, a dressing was applied. It was impossible to examine the eye until ten days after operation, when ideal healing was in progress, and the lens was seen to be in position, but its opacity markedly increased. After six weeks a second attempt was made, a hypodermic injection of morphia and hyoscin being given, and deep anesthesia completed by means of a few drops of chloroform. A perfectly straightforward extraction was done without loss of vitreous. There was no nausea after recovery from the anesthetic, and six weeks after the second operation vision of 20/70 was obtained.

DISCUSSION. Dr. Bane had had a similar case with explosive hemorrhage following extraction.

Dr. Strickler mentioned that it had been advised to give half of the dose of morphin and hyoscin an hour or so before and the remainder shortly before, operation.

WILLIAM H. CRISP, Secretary.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF NOVEMBER 4TH, 1912.

DR. S. LEWIS ZIEGLER, CHAIRMAN.

Bilateral Buphthalmos.

Dr. William Zentmayer exhibited a case of bilateral buphthalmos. The patient was a colored boy 11 years of age. Both eyes showed the characteristic changes of this affection. The interesting feature of the case was the absence of increased tension: in one eye it was slightly minus. Notwithstanding this the distension was extreme and deep glaucomatous excavations were discernible in the papillae through the cloudy corneae. Dr. Zentmayer commented upon the coincidence that this was the third case of buphthalmos in his service within six months all in negro children. He thought that the frequency of its occurrence in this race was to be explained by the greater prevalence of syphilis among the negroes, the pathogenesis of the condition being an intrauterine specific inflammation which interfered with the proper development of the eye.

Dr. Risley recalled having seen three cases of buphthal-

mos, two of which were in colored children, the third a white girl born of syphilitic parentage. There was in this case, at the time of birth entire seclusion of the pupil from prenatal iritis. After birth, the eye rapidly developed increased tension and buphthalmos. The eye-ball was removed and measured 37 mm. in its antero-posterior diameter.

In one of the colored children Dr. Risley had performed a broad iridectomy upward on both eyes, which relieved the pain. About ten year later he heard through an aunt that the child had maintained sufficient vision to work in the garden, seeing enough to pick peas and to remove the bugs from potato vines. It would seem therefore that this child had been benefited to the extent of saving such vision as she had at the time of the operation.

Dr. Posey said that he was unable to recall whether the few cases of buphthalmos he had seen occurred in white or colored subjects. He had never, however, seen a case of buphthalmos in his private practice. He thought the haze and stretching of the limbal tissues, as demonstrated so clearly in one of Dr. Zentmayer's cases indicated the probable origin of the affection, i. e., in an inflammation of the mesoblastic tissue of the eye during intrauterine life. The frequent occurrence in negroes suggested the nature of this affection to be probably luetic. Iridectomy was most unsatisfactory in buphthalmos, owing to the extensive and firm adhesions which glued the iris to the cornea. He thought cases of idiopathic buphthalmos extremely rare and cautioned against mistaking instances of pseudo buphthalmos (i. e. cases in which the globe was stretched in consequence of some disease originating in the eyes after birth) from the stretching of the globe from causes operating during intrauterine life.

Dr. Crampton inquired if cases going on to rupture had occurred in the experience of the author, and mentioned having seen cases of this sort in the service of the late Dr. George C. Harlan at the Pennsylvania School for the Blind. The sclera and cornea gradually became so distended and attenuated that rupture ensued. This accident was prevented generally in extreme cases by timely enucleation.

Tubercle of the Choroid.

Dr. William Campbell Posey showed a case of tubercle of the choroid in a woman 21 years of age. The tubercle had first appeared some two months previously, taking the form of

an intense uveitis. The tuberculous nature of the affection had been suspected by a positive von Pirquet test and was later confirmed by sub-cutaneous injections of old tuberculin, the reaction being obtained by a dosage of 1-25 milligram. Dr. Posey warned against the use of strong solutions of tuberculin for diagnostic purposes and said his initial dose was invariably 1-500 mg. Under the continuous use of tuberculin vision was improved, the vitreous clearing, a large tubercle now being visible at the equator of the globe to the temporal side. The hypodermic use of tuberculin will be persisted in throughout the winter, and Dr. Posey was of the opinion that the patient will ultimately obtain satisfactory vision in the affected eye.

Detachment of the Retina.

Dr. Burton Chance presented a case of detachment of the retina of obscure origin. The patient was a lady past fifty, who had been in good health, except for a troublesome cough with which she was sometimes seized in violent paroxysms. She came to the hospital first in December, 1911, because of presbyopic symptoms. The fundi at that time were healthy and her sight was good, V-6-9. She came again last week with the statement that her sight had remained good until the middle of August, when that of the left eye became blurred, yet as the degree of the obscurity varied she had paid but little attention to it. When examined four days ago a large and bulging detachment of the retina was seen involving the upper temporal quadrant and projecting well across the axis, hindering all view of the disk. There was a flat separation in the lower field. The retina was so dark, so smooth, and the vessels course so straight that Dr. Chance first thought a solid mass had caused the separation. The tension was not increased, however, although the mass was apparently immovable. The eye was not myopic; there had been no injury; nothing suggested itself as a cause except the violent attacks of coughing. The mass seemed to throw no shadow in transillumination; it was too far back to receive the full force of the lamp.

It was difficult to arrive at a clear understanding as to the cause of so great a detachment. The age of the patient, the absence of any history of injury or disease, and the refraction of the eye suggested the possibility of a solid substance being the cause. As a tentative measure potassium iodid was prescribed, and the patient was advised to restrict her motions.

To-day to the surprise of all, the mass has become so much

reduced that the disk can be seen. The separation at the floor has increased, however, so it is probable the gravity has caused a transfer of the fluid to the lower portions of the globe.

Dr. Posey said that by reason of the localization of the detachment in the upper temporal portion of the retina, on account of the absence of myopia and history of traumatism, and from the age of the patient, the possibility of the detachment being due to sarcoma of the choroid should be taken into careful consideration. While the transillumination test was negative, the presence of a growth should not be excluded from this alone, for if the growth was at all posterior, transillumination of the globe would naturally show nothing.

Dr. Zentmayer did not think that the detachment was secondary to a new growth because of its sudden onset without previous disturbance of vision, because the previous recent examination of the eye revealed it to be healthy, that transillumination was negative, which was however only negatively important, and because there was a history of repeated severe attacks of coughing. He was opposed to enucleation.

Neutral Soap in Operative Technique.

Dr. S. Lewis Ziegler exhibited a neutral liquid soap, especially adapted for use in ophthalmic surgery. It contained but 10 per cent of alcohol, 10 per cent of glycerine, and is made from cotton seed oil, which is a light, bland oil. The soap is a very thorough cleanser, has the advantage of not producing a lather, and because of its lack of alkalinity it is not irritating to the skin and can be used without danger in the conjunctival sac.

Dr. Zentmayer asked Dr. Ziegler whether he had had cultures made from hands which had been washed with neutral soap.

Orbital Disease.

Dr. Posey showed two cases of orbital disease in young men. In the first of these he had performed a Krönlein operation for diagnostic purposes and finding the orbit to be filled with a hard growth, apparently sarcomatous in nature, he had removed the eye and eviscerated the contents of the orbit. Microscopic examination of the growth has not as yet been made. This case was of interest because when first seen a diagnosis of orbital cellulitis from periostitis had been made and a microscopic examination of a strip of excised tissue giving evidence of a diffuse cellulitis.

In the second case there was marked proptosis with signs of acute orbital cellulitis in a young man who had some months previously undergone a Killian's operation for suppurative frontal sinusitis, the recurrence of the orbital cellulitis being due to a recent infection of the ethmoidal and sphenoidal cells. The acute symptoms were subsiding under local and general treatment, but Dr. Posey said that he proposed to open the orbit later for the purpose of removing a layer of dead bone which the X-ray showed to be present in the roof of the orbit.

J. MILTON GRISCOM, M. D., Secretary.

PROCEEDINGS OF PORTLAND OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SOCIETY.

MEETING OCTOBER 21, 1912.

DR. RICHARD NUNN, PRESIDING.

Ocular Palsies.

Dr. McCool gave a short talk on ocular palsies. He said that the average busy ophthalmologist seemed to have neither the time nor the inclination to determine, by modern scientific methods, the particular muscle or group of muscles involved. Since it is known, therefore, that approximately 60 per cent of all ocular palsies are luetic in origin, many men were inclined to regard the therapeutics of this condition much as the elder internists regarded skin diseases, dividing them into two classes,—those that zinc oxide would cure and those that it would not. He criticised this irrational and unscientific method of dealing with the subject, and emphasized the fact that not infrequently they constituted early, though none the less positive, evidence of some underlying dyscrasia or disease of the central nervous system.

As preliminary to the etiology of palsies he reviewed briefly the anatomy of the ocular muscles, recalling that the insertions of the four recti muscles assumed a spiral arrangement around the limbus, and that the superior and inferior recti subtend an angle of approximately 25 degrees and the two obliques an angle of 45 degrees with the optic axis. A knowledge of this relationship is not only important but absolutely essential to a clear conception of the different muscular problems. Duane's scheme for diagnosis seems to be the best.

From an etiological standpoint syphilis undoubtedly heads the list,—fully 60 per cent are of this origin. Brain tumors supply their quota. Transient isolated palsies are particularly

suggestive of tabes and general paresis, and when recognized are extremely valuable aids in clinching a doubtful diagnosis of these affections. Since the advent of spinal anaesthesia not a few cases of ocular palsies, especially of the external recti have been reported as a result of this procedure; fortunately many of them clear up without any treatment whatever. Rheumatism, gout, diabetes, tuberculosis and diphtheria all bear an etiological relationship to ocular palsies. Not to be passed by without especial mention are those cases of palsy consequent upon disease of the accessory sinuses or any severe inflammatory condition of the cephalic mucosa. This has been proven by abundant evidence. Finally traumatism, either due to instrumental delivery or sustained later in life, will cause an ocular palsy.

The seat of the lesion may be either cortical, nuclear, fascicular, basal, or peripheral.

Of the classic symptoms, e. g., limitation of movement, primary and secondary deviation, diplopia, false projection, false position of the head,—sometimes called compensatory turning of the head—headache, nausea and vertigo, diplopia is the most distressing to the patient, and the symptom which causes him to seek advice. Furthermore, a diagnosis of the muscle or group of muscles involved can usually be made from this symptom alone. Headache, nausea and vertigo are subjective symptoms consequent upon diplopia.

In diagnosis, Duane's arrangement of the twelve ocular muscles into right and left lateral turners, right and left elevators and right and left depressors, is undoubtedly the simplest and most satisfactory. The diagnosis is made by a process of exclusion.

Palsies amenable to internal medication or which show evidence of spontaneous recovery usually require from six to ten weeks for their cure; while those dependent upon definite structural changes become permanent. When syphilis is the cause, mercury and the iodides still remain the sheet anchors in treatment; salvarsan seems to be still "sub judice." In order to correct the annoying diplopia and dispel the headache, nausea and vertigo, a patch or covering should be worn over one eye. The speaker did not believe in the use of a prism incorporated in spectacles when the palsy was recent and improving under treatment, as it seems irrational to attempt to correct a changing condition by means of a prism of definite strength.

However, if the amount of the deviation remains fixed after some months have elapsed and shows no tendency to alter, this method of treatment may be tried, especially if operation be refused. Palsies due to the several dyscrasias should receive treatment adapted to each. Those due to spinal anaesthesia will usually recover spontaneously. If the accessory sinuses are suspected, they should receive attention. Strychnine is of doubtful value. Finally, the procedure recommended by Michel,—that of extending and contracting the affected muscle with a fine toothed forceps may be tried.

Dr. Kistner reported two cases illustrating the difficulty experienced by the most careful and painstaking clinicians in determining the pathological processes underlying diseases of the ear. In the first case the patient was under observation for two months, at no time showing signs or symptoms of disease of the mastoid or middle ear. After a lapse of three weeks the patient returned presenting evidences of sub-periosteal abscess. Subsequent operation disclosed complete necrosis of the mastoid process. The second case was under observation four months without any discharge from the middle ear, but finally developed mastoiditis.

Dr. Waugh reported a case which presented for study a small tumor covered with dilated bloodvessels situated at the base of the tongue. It obscured the vocal cords. A diagnosis of fibroma was made and the case referred to a general surgeon for removal. Subsequent pathological examination showed the tumor to be an aberrant thyroid.

Dr. Wright spoke of a patient who had consulted him in reference to a dull pain in the right ear. There was no discharge and he was unable to discover an adequate cause for the pain. After consulting several other physicians he returned to Dr. Wright, who, on the basis of distinct mastoid tenderness, advised operation. This was accordingly performed. The mastoid was completely necrosed and the dura exposed over an area the size of a quarter. Complete recovery. He also mentioned briefly a case of partial atresia of the external meatus complicated by a furuncle. After the latter had healed he tried gradual dilatation with a probe and later with a piece of rubber tubing, with only fair success. Thought of Jensen's operation as a possible means of cure.

Dr. Bruere reported two cases of plastic iridocyclitis following injury to the fellow eye. In both the injured eye had been

enucleated, but unfortunately not in time to prevent sympathetic inflammation in the other eye. Light perception and projection were poor. Pupillary occlusion present in both cases. Upon the urgent request of the patients that some operative interference be attempted, an iridectomy was performed with the result that in one instance the patient was able to read and earn his living, while in the other there was no improvement whatever. Another case which came under his care was one of iritis complicated by occlusion of the pupil. Attempted an iridectomy but failed. Later, at the urgent request of the patient, he tried again; this time securing a good coloboma, but found that the lens was cataractous. Ten days later he extracted the lens, but was unable to remove all the cortical substance. The immediate result was light perception. Later vision rose to hand movements at three feet. Hopes for further improvement.

Dr. Beaumont remarked that our mistakes sometimes rebound not only to the benefit of the patient, but also to our own reputation and peace of mind. The case in point was one of acute inflammatory glaucoma. An iridectomy was planned, but unfortunately the operator was unable to secure a firm hold of the iris. Another attempt likewise failed. In making a third the capsule of the lens was ruptured. He immediately terminated the operation and bandaged the eye. The lens substance was subsequently absorbed; and later with suitable correction the patient was able to see to read. He also reported an interesting and rather alarming incident that had occurred while he was making an ophthalmoscopic examination. Immediately after the light was thrown on the retina the patient collapsed, requiring stimulants by mouth and hypodermically to restore him. The patient said that this had happened once before but thought it only a coincidence. He offered to return again in order to have Dr. Beaumont try it again, but his request was politely though none the less firmly declined.

DISCUSSION. Dr. McCool suggested that it seemed to him to be a case of reflex cardiac inhibition, through the sympathetic nervous system and the vagus.

Dr. Kieble alluded to the hypnotic effect that the bright light from a retinoscopic mirror occasionally produced in young children. He reported a case of left abducens palsy in a child six years old following fracture of the base of the skull, which eventually cleared up with rest and the local use of atropine.

pine. He also referred to a case which he had reported at a former meeting of primary carcinoma of the antrum of Highmore in a man eighty-one years old. Patient died four months after the appearance of the growth.

Dr. Ralph Fenton reported a case of laryngeal fibroma in a man thirty-eight years old. Patient complained of increasing dyspnea at night for the past six months. Examination showed a polypoid growth $\frac{1}{4}$ -inch below the vocal cords. A portion of the tumor was removed upon the first attempt and the remainder the following day. The tumor measured $\frac{3}{4}$ of an inch long by $\frac{5}{16}$ of an inch in diameter.

Dr. Roth reported an interesting case of frontal sinusitis. Patient has been given twenty injections of micrococcus vaccine with negative results. Asks suggestion in treatment.

Dr. Nunn, in speaking of the unique cases that attract our attention from time to time, referred to a little child who had been brought to him from a near by town with what was supposed to be simple conjunctivitis. The conjunctiva of the upper lid and cul de sac was smooth but congested; that of the lower was swollen and puffy, and upon closer examination he found that the puffy swollen conjunctiva covered an oat seed, which had been there for about three weeks.

Dr. McCool reported case of a man forty-six years old, an inveterate drinker and smoker, whose vision had been failing for the last eighteen months. Sees better on dull days and at night. Vision R. E. 3/45 L. E. 4/45. Pupillary reaction to light accommodation and convergence normal. No comitant signs of tabes.

Visual fields: Form fields contracted slightly. Fields for red and blue also contracted and interlacing. No green fields. No central scotoma either relative or absolute. Ophthalmoscopic examination shows temporal pallor of discs. Fundus otherwise normal.

Diagnosis lay between simple atrophy and tobacco—alcohol amblyopia. In spite of the history of excessive indulgence in alcohol and tobacco, he was inclined to believe the condition one of simple atrophy, especially since there was no central scotoma. He was aware, however, that certain rare forms of toxic amblyopia do not present central scotomata. However, the absence of the green field, with the contraction of the form and color fields, was strongly suggestive of simple atrophy.

JOSEPH L. MCCOOL.

PORTLAND OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY.

MEETING NOVEMBER 18, 1912.

DR. RICHARD NUNN, PRESIDING.

Interstitial Keratitis.

Dr. Higgs reported two cases of interstitial keratitis of unusual interest. The first because of the severity of the process and the second for the rapid improvement after the intravenous injection of neo-salvarsan.

Case I. Mrs. X, aged thirty-two years. Mother of four healthy children. Family and personal history good. She was seen probably about ten days from the onset of the disease. Cornea of left eye primarily involved. Opacity central rapidly spreading to periphery until entire cornea was opaque. Photophobia distressing and pain severe, especially at night. Several days later a small area of infiltration appeared in the substance of the right cornea in the lower nasal quadrant, which in time gradually involved the entire cornea. A Wassermann test was negative. Atropine and hot compresses were used locally at varying intervals throughout the treatment. In spite of the negative Wassermann he felt convinced that the case was specific and administered mercury and potassium iodide,—the former to saturation—supplementing these with diaphoretics and cathartics. The intensity of the photophobia necessitated confinement in a dark room for six weeks. No improvement in vision for four and one-half months. Patient was unable to see to walk without assistance for six months from onset. Both corneae were clear at the end of twelve months. Vision now at the end of thirteen months normal. Points of interest were the severity of the disease, the fact that both corneae were involved, the age of the patient, and the length of time in effecting a cure.

Case II. Girl, aged twelve years. Father suffers with rheumatism. Family and personal history otherwise good. Patient complained of poor vision in left eye eight months ago. Mother noticed that the left cornea was "milky." Soon after this the right cornea became involved and vision in both eyes grew rapidly worse. When seen first, about five months from the onset of the disease, vision in each eye was $3/200$. Opacity in both eyes most marked in pupillary area fading toward the periphery. Pain and photophobia slight. Treatment consisted of atropine, hot applications, laxatives and mercury. Patient

returned in three weeks. Opacity spreading toward the limbus. Vision now hand movements at three feet. A Wasserman test was negative. Patient sent to hospital for two weeks' treatment. At this time another Wassermann test was made with a positive reaction. Inasmuch as the patient showed no improvement with mercury, it was decided to inject neo-salvarsan intravenously. This was accordingly done September 27th. Improvement was evident five days after this injection. One month later her vision had risen 20/100. This case is still under observation.

DISCUSSION. Dr. Kiehle was much interested to learn of the reliability of the Wassermann test, as he had not supposed that the reaction could be obtained in tertiary, much less in hereditary syphilis. He believes that salvarsan is valuable in the early manifestations of acquired syphilis but rather doubts its value in the tertiary and hereditary forms of the disease. Feels that every effort should be made to arrive at a correct diagnosis in cases of this character.

Dr. Hendershott reported a case of interstitial keratitis in a girl eight years old, who presented so many of the classic symptoms of inherited syphilis that it seemed superfluous to have a Wassermann test made. This, however, was done with a negative result. Under mixed treatment the condition cleared up in three months. Mother since has shown signs of syphilis. Wassermann positive. Intravenous injection of salvarsan. Patient is improving rapidly.

Dr. McCool spoke of the tendency to regard syphilis as the sole cause of interstitial keratitis. We know that at least 10 per cent of the cases are tubercular. As our methods for accurate diagnosis improve he believes that this percentage will increase. He cautioned against the tendency to disregard the teeth and diseases of the accessory sinuses as possible causes of interstitial keratitis. He quoted from an article by Bruner in the October number of the *Annals of Ophthalmology* to emphasize this point. In the use of salvarsan he advised against the indiscriminate use of this remedy in ocular syphilis unless the functional or anatomical integrity of the organ was seriously jeopardized; and, bearing on the use of this drug in interstitial keratitis, he quoted Dr. Posey, who, in a paper before the Wills Eye Hospital Society, opposed the use of the drug in this class of cases. He would add dionin in 5 and 10 per cent solution, or in powder form, to the local measures and give Fowler's solution and ferri iodide internally in increasing doses.

Dr. Wright reported the following case of interstitial keratitis: Mrs. X, thirty-one years old, mother of two healthy boys. No history of syphilis. Could find no other cause, but believed it to be specific in origin. After six months of anti-syphilitic treatment, combined with the usual local remedies, vision improved 20/70 to 20/20.

Dr. Kistner emphasized the great importance of determining the etiology and making a correct diagnosis in this disease. Believes that a positive Wassermann clinches the diagnosis, while a negative one means nothing; a little mercury or alcoholic excess prior to making the test makes it valueless. In conversation with some ophthalmologists he remembers having heard them advise the use of salvarsan to put the patient out of the infective zone; but they always followed this injection with a course of mercury and iodides.

Dr. Waugh raised the very interesting question as to the value of subconjunctival injections in interstitial keratitis with no demonstrable improvement in the course of the disease.

Dr. French has seen some cases of this disease very favorably influenced by the addition of dionin to the local treatment.

Dr. Nunn has observed many cases treated with and without mercury with no apparent difference in results. He raised the point that if mercury cured, why did it not have a beneficial effect on the second eye.

Dr. Higgs in closing said that he had never used subconjunctival injections in these cases, but had used this mode of treatment in *ulcus serpens* with good results. The operation when oxycyanide or mercury was used was very painful.

Dr. McCool, referring to *ulcus serpens* and its treatment, said he believed that many experienced clinicians were convinced that subconjunctival injections of normal salt solution were quite as efficacious as the stronger mercurial solutions.

Drs. Nunn and Wright reported a case of bilateral zonal cataract with coloboma of the iris of the left eye in a girl nine years old. There were no other external faults in development and the lenticular condition prevented a fundus examination.

Dr. McCool made a preliminary report of a case of episcleritis or scleritis in a woman, twenty-nine years old, which, at the present time, seems to be due to dental caries. The case was seen first in July and then disappeared from observation, returning in November. At this time the sclera was undoubtedly involved and she consented to have some dental work done.

Was taking heavy doses of aspirin from time to time with no benefit. Real cause is still doubtful. A von Pirquet test will be made to eliminate tuberculosis. Patient has had menstrual disturbances for some time but says she is better. Further progress of the case will be reported later.

Dr. Wright reported another case: Mr. X, twenty years old, had had an attack of acute otitis media following scarlet fever eleven years ago. After recovery from this disease had a facial palsy on the side affected, from which he recovered. Seven years later had another attack of facial palsy on the same side, which cleared up with appropriate treatment. For indications, the nature of which he did not mention, a radical mastoid was performed and the bone was found to be extensively necrosed. At no time during the entire operation was the operator nearer the facial nerve than $3\frac{1}{16}$ of an inch. Three days later facial palsy developed. Would like opinion as to probable cause.

Dr. Kistner suggested recurrent neuritis. After some informal discussion, the majority of the members seemed to agree with this diagnosis.

JOSEPH L. McCool.

PROCEEDINGS PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

NOVEMBER 14, 1912.

DR. WENDELL REBER IN THE CHAIR.

"Treatment of Disorders of the Lachrymal Apparatus."

Dr. W. W. Watson: Varied disorders of the lachrymal apparatus extend from a simple inflammation of the lachrymal gland which is rare (a dacryo-adenitis) to suppurating disturbances of the sac and naso-lachrymal tubes of a profound type. The treatment must therefore be of such a character as to meet these various requirements to combat the progress of the disease successfully.

Obstructions of the naso-lachrymal duct are usually situated at the commencement of the canal or at its opening into the nose. A method of ascertaining if there is a stenosis of the naso-lachrymal passage is to introduce into the canaliculus the needle of an Anel's syringe as far as the sac and with it inject a small quantity of salt solution stained with fluoresceine. If the canal is patulous, the colored fluid will present at the nose. Absolute proof, however, is the passage of a probe and slitting

of the canaliculus. Treatment by sounds must be kept up with a gradual increase in their size until a Bowman's No. 4 at least passes with ease. The probe should be introduced every few days if the patient can come for treatment that often, but if not the wearing of a style is advocated for a short time. If there is continual recurring tumefaction in the nose, resection of the inferior turbinate is indicated.

Treatment of chronic dacryocystitis is directed to the underlying nasal cause and the extirpation of the sac. Preservation of the sac is usually impossible if bony strictures are present and early removal should always be considered in the laboring classes, who have little time to spare. In acute dacryocystitis developing rapidly into an abscess, treatment should be directed toward prevention of abscess formation. Restore the lumen of the duct by sounds and if possible induce the fistula to close, if the cutaneous wall has had to be incised for abscess.

DISCUSSION. Dr. Posey: "My own practice differs somewhat from that mentioned by Dr. Watson. In acute dacryocystitis it is my practice to place the patient under ether, and to evacuate the pus from the sac by slitting up the lower canaliculus. The stricture in the duct is then overcome by probing and a style introduced to keep the duct patulous. Healing is prompt and this method has the advantage of not only relieving the acute condition but also of correcting the cause at the same time. It is essential that the short end of the style should rest securely in the groove of the incised lower canaliculus, for cosmetic reasons and to prevent the incision from healing. The style may be left in situ for months. Never syringe after probing, on account of the danger of some of the fluid getting into the soft tissues of the orbit through a rent in the mucous membrane." He deprecated the use of silver nitrate or other strong caustics in syringing and said that he had once seen optic atrophy arise (in the case of a colleague) from orbital cellulitis excited by syringing with a 1 per cent solution of silver nitrate, the solution gaining access to the tissues of the orbit in consequence of a false passage made with the tip of the syringe. In all cases where the mucous membrane of the sac was secreting pus and in all cases of mucocele he advised the immediate removal of the sac. He had never removed a portion of the lachrymal gland, and cited a case occurring in the practice of a colleague in which serious corneal complications arose following the excision of the palpebral portion of the gland. He can-

tioned against the employment of Weber's canaliculus knives with curved tips. In many cases of stillicidium the stricture is in the canaliculus, near its entrance into the sac, and unless a straight probe pointed knife be used, the surgeon will not succeed in entering the sac in such cases but will merely slit up the canaliculus.

Dr. Harbridge. Following a discussion of this subject last season before this Society, I selected three patients with lachrymal trouble in which there was present a profuse pus discharge. Each was thoroughly cleaned and a probe passed once. Subsequent treatment consisted of washing with a boracic acid solution followed by a very weak iodine solution (and a few drops of Lugol's solution). The pus disappeared and in its place there persisted a moderate mucus discharge. One in which the washing was withheld for a time promptly returned to a pus discharge. It is likely that removal of the sac will be the only means which will afford entire relief.

Dr. Kistler. I would like to say something in regard to the lead style. Dr. Posey remarked that he leaves the style in for six months without taking it out; also that it needs no cleaning. I have been troubled with concretions forming at the root of the style. If I had not removed them at that time they would have been completely eaten off. I have had this experience twice or three times. In one case particularly the wire was almost entirely eaten off. In the two other cases the wire was covered with a corrosion that was hard to remove.

Dr. Peter. I have had similar experiences of the kind Dr. Kistler just spoke of. I find that leaden styles will have a certain amount of corrosion on them. For that reason I have been in the habit of removing these styles once in three weeks and I find I have to put in new styles.

Dr. Posey said there was always some corrosion at the nasal end of the styles, but that he had never seen it give rise to any trouble. The styles should not be made of pure lead, but of an amalgam of lead and zinc. He had removed styles which had remained in situ for two years or more without giving rise to irritation. He had once removed a piece of gold wire from a man's nose, which had been inserted into the duct 28 years previously.

Dr. Reber. Some years ago Dr. Sweet removed with great difficulty a style that had been in the duct for 7 or 8 years. Personally I don't see why the styles should not be removed oftener but it seems to me it would be preferable to have the sac

removed. In the matter of acute dacryocystitis I support Dr. Posey. I saw a young man yesterday, 20 years of age, who had been sadly overtreated. He is wearing a very poor correction which may have something to do with the existing condition. The anterior end of the inferior turbinate of the affected side was edematous and obstructing the valvelike opening at the lower end of the lachrymal duct. Removal of the anterior end of the inferior turbinate body entirely relieved the epiphora. I agree with Dr. Posey that where there is mucocele or dacryocystitis extirpation is the best procedure.

"Senile Cataract Extraction Followed by Certain Complications."

Dr. D. Forest Harbridge. Referring to the operation for the extraction of senile cataract in the very old, he spoke of the subsequent disaster which frequently occurred during convalescence or later, influencing primarily the utility of the eye and very likely secondarily the life of the patient. The secondary effect is to be qualified by the expression "very likely" for the reason it is difficult for a physician to estimate accurately the resistive and recuperative powers of the old and infirm patient. The greatest proportion of senile cataract patients coming to operation are between the ages of sixty and seventy-five years. A very small minority of operations occurring above the age of eighty years.

The writer recalled eight operations upon patients eighty years or above which strongly impressed him by the severity of the operation upon the individual's subsequent life history. In certain instances the extreme shock lasting for months finally terminating in death.

Two patients, dying within a year from cerebral hemorrhage. One patient (diabetic) dying within three days from an uncontrollable vomiting. Two (same patient), one eye lost, result of injury while delirious, really useful vision of remaining eye persisted for three years. One, extremely nervous patient, squeezed lids at time of first dressing causing wound to open, necessitating further attention. Patient remained profoundly prostrated for some two years. One, mildly delirious, removed her bandage three times the first day, allowed to sit up the following day, returned home on the ninth day with a perfect result. One, complicated by premature extrusion of the lens followed by fluid vitreous. Twelve hours later the patient developed acute mania. Wound healed kindly. At the pres-

ent writing (one month) the patient remains so profoundly shocked that life is in imminent danger.

In all there was present mental disorder, from a mild delirium to acute mania and in only one can the result be considered entirely satisfactory.

Dr. Harbridge does not take the above as contra-indicating the operation under certain circumstances, but he does feel that "very likely" the shock lessens the length of life in many patients. It should therefore be taken as a warning not to be too aggressive, for if these old patients can get about with a fair degree of comfort it is better not to interfere.

DISCUSSION. Dr. Posey. Dr. Harbridge has done well to point out that the operation for cataract is a great shock to the patient. At least 10 per cent of those operated on suffer temporary mental aberration. It was held by some that the delirium was due to the atropin which was dropped in the eye subsequent to the operation, but we know that that is not true, because delirium has been observed when atropin was not used. Schmidt-Rimpler thought that it was due to the exclusion of mental impressions in consequence of the bandaging of both eyes. But the delirium has occurred when no bandaging was done. A French observer, Martin, thought it was due to auto-intoxication, probably from a retention of urine, but this may be disproved by our own experience at Wills Hospital, where it is the rule to clean out the bowels before the operation, to keep the diet low for 24 to 28 hours and to catheterize the patient if the urine is not voided. Dr. Kipp claimed that homesickness was the cause of the delirium, but we have seen these patients delirious when operated upon in their own homes. In my opinion, the delirium is due to the excessive preoccupation of the patient both before and after operation and to various senile vascular changes in the brain. In most cases the delirium passed away in ten days to two weeks, but in those predisposed to insanity chronic mania may ensue. Dr. Posey said that the operation for the removal of cataract should only be undertaken in very old subjects when vision was so low that it no longer permitted the sufferer to get about. In a few cases, death ensued shortly after the operation from pneumonia or apoplexy and he was convinced from his own experience that the shock of the operation frequently hastened death. Many of his aged patients who had been successfully operated upon, died within a year of the operation.

Dr. Reber. What Dr. Posey has said just about covers all there is to this matter. The whole subject is an intensely interesting one to me. I feel exactly as Dr. Posey does and I do not often advise people over 80 years of age to have an operation. There is almost always so much psychic excitement that I advise a preliminary iridectomy in younger people. In one of my cases pneumonia developed fulminantly in a very fat man, 61 years of age. He was perfectly well the evening of the fourth day and died in about an hour. I believe we should not promise the patient or the family too much. My usual statement is that if the patient can get about by themselves it is all that can be reasonably expected.

Dr. Zentmayer reported that he had had a patient die after a cataract operation. He had been up and about but was found dead in bed. He was very feeble. His mentality was not of the best but no apparent cause was found for his death.

Dr. Harbridge, closing. Regarding the question of a preliminary iridectomy, Dr. Harbridge rather favors this method as possessing certain advantages, in that it affords in a measure an opportunity to know how both the patient and his tissues will withstand such interference.

D. Forest Harbridge, M. D., Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

MEETING, OCTOBER 21, 1912.

THE PRESIDENT, DR. THOMAS FAITH, PRESIDING.

A Case that had Recovered from Sympathetic Inflammation with Normal Vision.

Dr. W. A. Fisher stated that the case was presented to the society three years ago at a symposium on sympathetic inflammation with a vision at that time of 3/200.

Elmer B., age 11, struck in the right eye May 17, 1907, with a piece of copper. Dr. Fisher saw him July 17, 1907. The right eye was hopelessly blind and there was a well marked sympathetic inflammation in the left eye. The right eye was removed within an hour from the first visit, he was given 70 grains of salicylate of soda every 24 hours. Two drops 2% atropine instilled into left eye every 4 hours and hot applications applied.

Left eye much better next day, but there was no vision on account of the dense exudate in the pupil. The pupil would not dilate and an iridectomy was performed July 30, 1907.

The tension was reduced, but did not entirely disappear. August 30, 1907, the left lens was removed on account of the tension. September 30, 1907, the eye was practically quiet and remained in a semi-quiet condition for several months. From May, 1908, until May, 1910, the eye remained quiet, tension was about minus one. His vision about 3/200. The pupil was drawn up and practically closed.

May 20, 1910, two years after inflammatory symptoms had disappeared, an iridectomy was performed by the Ziegler's method. A large pupil was made which has remained open. He was kept in bed after the operation, eliminative and large doses of salicylate of soda given, atropine 1% and dionin 10% instilled in the eye four times a day. His vision improved.

August 20, 1910, his vision had increased to 29/65 with correction. From this time on the improvement was slow but sure. November 30, 1912—vision was 20/40. The eye has not given him any trouble for more than a year. His vision is 20/20 and he can read Jaeger No. 1.

The excellent result obtained may be attributed at least in part to the iridotomy being performed two years after the inflammation had subsided.

DISCUSSION. Dr. W. F. Coleman in 1887 reported 28 cases of sympathetic ophthalmia. He had removed sixteen. In twelve cases he advised removal but it was refused. In earlier experiences blindness resulted in the other eye in at least six cases because his advice to enucleate had not been taken. Dr. Coleman advises removal of all eyes where the wound is so serious as to cause prospective loss of vision to the patient not only because of danger to the fellow eye but for cosmetic and economic reasons. It was his experience that the removal of the injured eye is of decided advantage.

Adami and others maintain that inflammation may occur without infection, so that Dr. Coleman thought sympathetic inflammation might occur without infection. In the last ten years he had not seen two cases of sympathetic ophthalmia, probably because of the antiseptic treatment of the injured eye, but he thought it possible for the eye to sympathize without infection.

So far as he knew the actual bacteria of sympathetic ophthalmia have not yet been discovered. Brown Pusey, E. V. L. Brown and others maintain that it is infectious. Others maintain that it may be due to reflex irritation. Years ago

Huling S. Jackson held that a nervous irritation maintained long enough produces a reflex inflammation. Dr. Coleman thought we go a little to extremes in the laboratory idea; that we are forgetting clinical experience.

Dr. O. Tydings. The last time he saw the patient was after iridotomy had been done and the eye was still red. It seemed to be a hopeless case of sympathetic ophthalmia.

Dr. Wm. H. Wilder: The temptation is to attempt an iridectomy too soon after the subsidence of the inflammation, and when it is done, however neatly, we are surprised to find that the coloboma quickly fills up with exudate, and possibly the inflammatory process is again aroused in the deeper structures. He makes it a cardinal rule in such cases to wait two years, at least, after all signs of active inflammation have disappeared before attempting iridectomy or removal of the lens.

If the lens has remained clear, an iridectomy may suffice, but usually it is found necessary to remove the lens, and if so, he prefers to do the iridectomy and the extraction at the same time, so as not to subject the eye to the irritation of two separate operations.

Dr. Oscar Dodd: Early operation is certainly contra-indicated.

It is always a question what to do in these cases because of the tension; in some, it is impossible to restore sight because of the disastrous results from secondary glaucoma. The case he mentioned terminated in this way so there was not even light perception after a time.

A Case of Monocular Optic Atrophy Following an Injection of Olive Oil and Lanoline by Dr. Wm. A. Fisher reported full on page 11.

DISCUSSION. Dr. Thomas Faith saw a statement which he believes was made by Lawford to the effect that the location of the injury to the nerve could be determined to some extent by the time at which the blindness and atrophy of the nerve occurred, viz., when the injury occurs in front of the point at which the artery enters the nerve the blindness will be immediate and the pallor of the nerve head will be at once noticeable. Where the injury occurs back of the point of entrance of the artery the fundus may retain its normal appearance for several weeks after the injury; the blindness sometimes coming on immediately and sometimes being delayed for a time, but always

preceding the symptoms of atrophy. He could readily understand how a particle of this injected material could have been forced beneath the periosteum and if considerable force was used could have dissected its way under this membrane into the orbit.

Dr. Jos. C. Beck. It is very easy to understand that if one takes a long needle and passes it directly next to the eye and injects a large quantity of paraffin that it will compress the optic nerve and make trouble. In over 300 injections in different individuals around the nose and where the eyes would be endangered, he had never had such a result, in fact, no difficulty with vision.

Dr. O. Tydings. He would like to know the probable course of the fluid, and whether there might be another law in effect here, one we are prone to forget, and that is the law of coincidence. Sometimes we have optic atrophy that is not easily explained. If this is the result of injection, it must be exceedingly rare.

Implantation of Glass Sphere into Capsule of Tenon.

Dr. Geo. F. Suker, presented a negro child act. 3 years, with a marked and excessive sclero-corneal staphyloma, preventing closure of lids. Enucleation difficult because of adhesions. Inserted a lead-free glass sphere into capsule of Tenon, covered same with deep conjunctiva and muscles, bringing same together with catgut sutures while the overlying conjunctiva was brought over this by a continuous silk purse string suture. Reaction moderate, but sufficient to preclude any great motion of stump. Yet, there is a full socket thus avoiding the sinking in of the prothesis and the usual sinking in of the upper lid back of the shell.

There is no doubt but that the presence of the sphere in Tenon's Capsule will materially aid the growth of the socket. It has been Dr. Suker's experience that some empty sockets in children do not attain the same size as the one having the globe, and since employing the implantations, this disparity in the size of the two sockets is not so marked.

DISCUSSION. Dr. W. F. Coleman had one case of sympathetic ophthalmia from the implantation of a glass ball in Tenon's Capsule. He collected seventeen similar cases from the literature. Fox, of Philadelphia, reported three cases occurring in his own practice following the implantation of a gold ball which he prefers to the glass ball.

Dr. Coleman shall never again implant a globe of any kind. We can use the Snellen eye or we can inject stearin, from which he has never had any trouble nor had he seen any reports of trouble. It is possible that by using fat, as Dr. Suker has used it, we may not have any risk of sympathetic inflammation.

Dr. Wm. Wilder, said when he observed the case of implantation of a glass ball in the capsule of Tenon, he could not help asking: "of what good is it?" There is not as much motion of the contents of the socket as there would have been if the ball had not been implanted. When any foreign substance of an inorganic nature is implanted in the orbit, there is usually excited such an amount of irritation as to bind the muscles by adhesions, and so to defeat the very purpose of such implantations, as in the present case. If, when enucleating the eyeball, one is careful to keep the instrumentation within the capsule of Tenon, injuring the soft parts as little as possible, the wound in the socket heals promptly and the stump moves readily. He doubts that much motion will be transmitted to the prothesis that may be used in this case.

Some operators have had good results from the use of fat, taken from the gluteal region and implanted into the capsule of Tenon, and he saw some cases of this kind in Elschning's clinic that were encouraging.

But to his mind, the very slight improvement in cosmetic results obtained by implantation of balls of glass or any metallic substance are offset by the danger of irritation which is likely to be produced thereby.

Dr. Thomas Faith, said he was not an advocate of the glass ball implantation.

Dr. Geo. F. Suker: (Closing) Dr. Coleman can not show a positive case of sympathetic ophthalmia due to the implantation of any sterile substance into the capsule of Tenon. It is impossible to get a sympathetic ophthalmia from any condition in a socket from which the globe has been removed. Dr. Suker looked up the literature carefully and Dr. de Schweinitz did the same and both were unable to find any record of such a case. He granted that if you remove an eye of a sympathetizing character and implant, and sympathetic ophthalmia should occur thereafter, do not blame the implantation. The trouble was there before the eye was enucleated.

When he enucleated this eye there were terrific adhesions

all around, and he had to tear them loose in order to enucleate the eye, but the result was a better cosmetic one. In this case we have not much movement of the stump because of the enormous adhesions. There is a nice sulcus not too deep so that there will not be a falling in of the upper lid. It may not give much more motion than could be gotten from an ordinary simple enucleation, but it will always avoid the sinking in of the upper lid. That is the important point in this class of cases.

Dr. Suker did not believe in evisceration and implantation in the scleral capsule. This capsule implantation does not take any more time than a simple enucleation, and the reaction is not much greater, the time of healing not much longer and the result is better than we get in a simple enucleation.

It is very gratifying to have had the seeming adverse discussion of Dr. Wilder, but if he will do the implantation he will find that notwithstanding this case, his results will be more satisfactory than those of a simple enucleation.

Nuclear Paralysis of Motor Oculi.

Dr. Geo. F. Suker presented a patient, Mr. K. aet. 50. German, good habits, family history negative as to syphilis and tuberculosis, married, family grown; a painter for the past 15 years; working in lead and water colors; has had lead colic and moderate drop wrist several years ago. About six weeks ago he noticed the drooping of the left upper lid. Within 24 hours he was unable to raise it, which caused him to seek advice. Upon examination a complete paralysis of the third nerve of the left eye was found, fundus normal, vision 20/20; no action whatever to muscles supplied by third nerve. The ptosis was complete and lid very flaccid. In every other respect all findings were negative.

The paralysis was not progressive in so far as the 4th and 6th were not implicated. The probable etiology is lead poisoning.

Under ascending doses of K. I. and Hall's Solution of Strychnia, improvement took place, though slowly. The branches for inferior and superior recti showing the earliest and most improvement. The iris now reacts to light and accommodation though slowly. Recovery may and may not be complete. The ptosis seems to be the slowest in showing recovery.

Congenital Cataract.

Dr. Geo. F. Suker presented a patient, Chas. H., aet. 11.

Bilateral congenital zonular cataract. The lens of each eye was needled once. The capsule was extensively lacerated, and iced compresses were used for 24 hours after the discission. Atropine was used daily. As soon as the reaction of the needling had disappeared which was within a week or ten days and the lens became uniformly opaque a corneal section in the lower quadrant was made with a Keratome and the lens delivered. A clean and complete delivery was accomplished in each eye, with scarcely any remains of the anterior capsule but an intact posterior capsule, vision in each eye 20/15 with plus 11 and minus Jaeger 1 with plus 14 and binocular fusion.

Congenital Absence of Globe, Small Socket and Blepharophthalmosis on Left Side with a Coloboma of Iris Downward in Right Eye.

Dr. Geo. F. Suker, presented the patient, Bertha B., 11 years; was born with the foregoing conditions: The vision in right eye is 20/20. No other congenital lesions in the eye excepting a coloboma of iris about 4 mm. wide, extending from pupillary margin to the root of iris, the remaining uvea was not involved. Down deep in the small socket of the left side, a whitish area is seen, which does not look unlike sclera, yet no mass can be outlined which might be taken for a cryptophthalmos. Parent will not permit the removal in order to determine whether we are dealing with a case of anophthalmos or cryptophthalmos. Plastic measures are being employed to enlarge lid fissure in order to wear, if possible, a prothesis.

A Case of Bilateral Ptosis.

Dr. Clifford E. Smith (by invitation). L. F., male, age 28 years. Has been under observation six months. Inherited drooping lids from father. First trouble with eyes began ten years ago and was diagnosed "granulated eye-lids" by an eye specialist. Patient's chief complaint has always been a *circular pain* in and about the eye balls. At the time trachoma was diagnosed patient experienced sensation of sand in the eyes, and lids became swollen and more droopy, but at no time has circular pain about eyes been relieved by glasses. Denies Lues. At present patient complains of circular pain about eyes, and inability to read over ten or fifteen minutes at a time. Bright lights hurt the eyes. There are no subjective symptoms.

R. V. = 20/30; -2.00 = + 1.75 AX .90° = 20/20.

L. V. = 20/30; -2.00 = + 1.75 AX .90° = 20/20.

Present glasses were fitted under homatropine and patient wears them constantly. The eyes feel better with them on than off.

To sum up, we have a patient with a bi-lateral ptosis, mixed astigmatism, chronic catarrhal conjunctivitis, and loosely attached ocular conjunctivae. He wears the correction for his astigmatism and has doctored long and faithfully for the conjunctiva irritation. However, the circular pain in his eyes has not been relieved and he is unable to use his eyes for any length of time for close work. Would some operation for ptosis be justifiable and what are the prospects for relief from this or other measures?

QUESTION. 1. Is there a relation between the ptosis and circular pain about the eyes? (He wears the correction for his astigmatism).

A Case of Foreign Body (Probably Copper) in Globe.

Dr. W. H. Wilder, presented the case of Walter R. aet. 8, foreign body in choroid of right eye. Was watching a bonfire when a sudden explosion threw a large amount of dirt into his face. August 27, 1912, fragments of copper was removed from the forehead. There was a small wound in upper part of cornea of right eye just below limbus. Hemorrhage in anterior chamber. T. m. After absorption of blood, iris was seen to be adherent to the small wound in cornea. Lens and vitreous clear. R. V. = 6/20.

Track of foreign body can be seen in the upper temporal part of eye ground, and a mass, probably encapsulated metallic fragment is seen one disc diameter from the upper temporal margin of the optic disc. Skiagraph shows f. b. in posterior part of the eyeball, but attempts to dislodge it with magnet have failed.

Present condition: Eye quiet. R. V. = 6/10, L. V. — 6/10.

Gummatous Scleritis—Episcleritis—Iritis.

Dr. W. H. Wilder, presented case, Miss C. T., aet. 21, who for the last two years had attacks of inflammation of left eye lasting from one to several weeks.

First seen March 1, 1912, when a large, yellowish hemispherical nodule about 5 mm. in diameter was seen on the nasal side of left eyeball 6 to 8 mm. from the limbus. It was rather firm and slightly attached to the sclera. This began as a pin-head sized nodule two months previously. On upper part of

eyeball an episcleritic node was present. Pupil irregular from post. synechiae.

Tuberculin test (von Pirquet) was *positive*.

Inoculation of eyes of two rabbits with small particle removed from the growth was *negative*.

Wassermann test distinctly *positive*.

R. V. 6/6 L. V. 1/60. Under treatment with mercury inunction and K. I. the growth completely disappeared.

Present condition: R. V. 6/6. L. V. F. 1 ft.

Fundus invisible.

Case of Inversion of Iris and Partial Dislocation of the Lens.

Dr. Charles G. Darling, presented the case of Mrs. C., act. 52, who came to the clinic on account of an ulcer of the cornea.

Examination of the left eye showed corneal ulcer near margin, inversion of iris and partial dislocation of lens. Patient said that 45 years ago she had a blow on her left eye and the pupil had been large and she had not seen well with eye since then.

One would expect to find the lens opaque after being partly dislocated for so many years.

The fundus can be plainly seen; there is a rupture of the choroid and a circumpapillary atrophy of choroid. Tension is normal. L. V. = hand movements.

Case of Probable Tubercular Scleritis.

Dr. Charles G. Darling presented case of Mrs. C. C., whose history is negative, with exception that she has nursed husband past two years, who is at home on account of pulmonary tuberculosis.

First seen September 18th. She stated eye had been inflamed for a number of weeks. Examination showed a marked Scleritis of left eye, with involvement of ciliary body, iris and cornea. An injection of 1/1000 mg. of T. B. was followed by a local reaction 24 hours later, all the following injections, about a dozen in number, given at intervals of four or five days, were followed by a local reaction. The case has improved under treatment of injections of T. B. and local use of atropine, dionin and hot applications.

As the patient had a local reaction in left eye following every injection of T. B., Dr. Darling believed the case to be one of local T. B.

Penetrating Injury of Globe by Fragment of Copper, Followed by Loss of Eye.

Dr. Charles G. Darling reported case of a young man

fourteen years old, hit in right eye while passing some boys throwing stones at blank cartridges. On examination three days later he found a cut in cornea, the fundus could not be seen on account of a traumatic cataract. X-Ray picture taken by Dr. Potter located foreign body at posterior pole of eye partly sticking through sclera. After cutting external rectus and rotating eye as far in as possible, foreign body could not be felt or seen at posterior pole of eye. Eye was removed and foreign body found to be of copper and in posterior pole of eye.

A Case of Persistent Pupillary Membrane.

Dr. Casey A. Wood (Presented by Dr. Rochester, for Dr. Wood.), reported a patient, 29 years of age, who had never been aware of the abnormal condition of his eye. He presented himself for treatment because of symptoms brought on entirely by his high degree of hypermetropia. No history of iritis or any other inflammatory disease of the eyes.

Examination disclosed a small band of tissue running from the anterior surface of the iris looping well forward into the anterior chamber and attaching itself to the lens capsule. As is usual in these persistent membranes the point of attachment on the iris is well back from the pupillary edge at the region where the embryonic vessels for nourishing the pupillary membrane formerly arose. At the point on the anterior capsule, where the final attachment is made, is seen a small white deposit, probably a remnant of the foetal vascular capsule of the lens. These persistent pupillary membranes are usually of little significance to the patient for they seldom, if ever, give any trouble and very slightly interfere with vision. With the proper correction, this patient's vision is practically normal.

An Interesting Case of Primary Glaucoma.

Dr. Thomas Faith presented case of primary glaucoma in a woman 29 years of age which started with a severe headache followed by pain, redness and swelling in the eyes and accompanied by attacks of blindness. Vision became reduced to light perception in right eye and 20/50 in left eye. Right pupil became widely dilated and tension plus two. Left pupil dilated more vertically, tension plus one. Distinct glaucomatous cupping of both nerve heads. On account of pain produced Eserine could only be used in very weak solutions, $\frac{1}{2}$ grain to the ounce, which seemed to have no effect on the pupil or ten-

sion. Fifteen minims of 5 per cent solution of Sodium Citrate was injected under the conjunctiva, which was immediately followed by lowering of the tension in each eye. Following this a one grain to the ounce solution of Eserine was used without causing discomfort. The pupils became smaller, vision improved and tension lowered. Elimination was promoted by the use of Phos. Sodii and Lithium Citrate.

DISCUSSION. Dr. William A. Fisher. In painful cases, as this one, Dr. Fisher did not see any harm in injecting a weak solution of cocaine under the conjunctiva before injecting the citrate of soda and he suggested that more cocaine be used before injecting the citrate of soda and then continue the eserine if necessary.

Dr. O. Tydings had used citrate of soda at first with good result in a case of traumatic glaucoma and he thought he was getting good results. The first thing he knew he had an increase of tension, and he has been a little more careful with it since. He had a case of glaucoma in a patient younger than Dr. Faith's patient, who went to the infirmary. She reported that she had been blind for two years following the fittings of a pair of spectacles in the infirmary. The patient was 24 years old and had been blind in the right eye for two years from glaucoma; the left eye was beginning to be affected. It was difficult to control conditions, and for the woman's own safety he advised her to go to the Michael Reese Hospital. He has had no record of her since, although he has asked Dr. Mortimer Frank to look up the case for him. The urine was examined but he did not recall the report now. He was unable to determine the cause of the glaucoma.

Penetrating Wound of Sclera-Cornea Repaired with Conjunctival Flap.

Dr. Richard J. Tivnen presented a case of a man, aet. 24, who one month previously had received a penetrating injury from a piece of steel at the sclera-corneal junction at about the location of six o'clock. When patient was seen four days later, examination disclosed incised wound of sclero-cornea with an incarcerated iris and a minute opening at the lower angle of the wound through which the vitreous constantly oozed. Radiograph and electric magnet, negative. History also clearly indicated that the foreign body was not retained in the globe. The wound was repaired by dissecting a conjunctival flap around the entire circumference of the cornea and drawing this

over the wound and securing same with a purse string suture. The patient was exhibited as an illustration of the satisfactory results one may obtain in utilizing a conjunctival flap as a splint and protection against infection in this class of injuries.

Case of Penetrating Wound of Cornea Followed by Traumatic Cataract.

Dr. Richard J. Tivnen presented a case, L. J., who about two months previously, while at work, was struck in the right eye by a piece of steel. Examination of right eye, 24 hours later, disclosed incised wound of sclera-corneal junction, nasal horizontal meridian, 5 mm. in extent. The iris was incarcerated in the wound. The lens was cataractous and some of the swollen lens material was present in the anterior chamber. While the history pointed to the absence of a retained foreign body a radiograph was taken and the electric magnet applied: both with negative result. Perception and projection, excellent; tension, normal. The case was presented to gain an expression from the members as to their practice in dealing with a cataract of this type. Dr. Tivnen, in the present case, while recognizing that the swollen lens material might, by traction or pressure, inaugurate a keratitis, an iritis or a glaucoma, had refrained from operative interference owing to the fact that the patient was constantly under his observation and that the eye presented no evidence of irritation or increased tension. In his judgment, as long as the progress of the eye is favorable and uncomplicated he felt justified in continuing his present plan of management.

DISCUSSION. Dr. C. F. Burkhardt had had a case similar to Dr. Tivnen's but there was no penetrating wound. His patient was a boy nine or ten years old. The cause of the injury to the lens was a shot from an air gun which struck the cornea with sufficient force to rupture the lens capsule and dislocate the lens into the anterior chamber. He treated the patient conservatively and the lens was entirely absorbed. The boy now has something like 6/20 vision with correction. Only a tiny shred remains, probably of the capsule.

Richard J. Tivnen, Secretary.

NEWS ITEMS

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Building, State and Madison Streets, Chicago, Ill.

Dr. H. Frenkel succeeds Terson as professor of ophthalmology at Toulouse.

The title of professor of ophthalmology was recently bestowed upon Dr. Krusius of Berlin and Dr. Bartels of Strasburg.

Dr. H. Neville Crow succeeds Dr. H. F. Seymour as surgeon to the Worcester (Eng.) Ophthalmic Hospital.

Dr. P. J. H. Farrell of Chicago was operated upon Dec. 15th for appendicitis and has made a good recovery.

Dr. D. W. Greene of Dayton, Ohio, has been appointed consulting ophthalmologist to Christ's Hospital, Cincinnati, Ohio.

Dr. Geo. F. Keiper of LaFayette, Ind., recently returned from Vienna where he has been visiting the eye and ear clinics.

The Nettleship Prize of the Ophthalmological Society of the United Kingdom has been given to Mr. George Coats of London for his work on the pathology of the eye.

Mr. F. A. Newman, D. O. Oxon., has received the post ophthalmologist to the Melbourne (Australia) Benevolent Society.

The University of Minnesota Free Dispensary is to have an eye department. Dr. Frank Todd of Minneapolis will direct the affairs of the department.

Drs. H. B. Hains and H. D. Rinehart have received appointments to the eye and ear staff of the Miami Valley Hospital, Dayton, Ohio.

Dr. J. M. Ray of Louisville, Ky., has been retained as a member of the executive committee of the medical department of the University of Louisville.

Dr. Derrick T. Vail of Cincinnati, O., was a recent visitor to Chicago, where he attended a session of the Chicago Ophthalmological Society of which he is an honorary member.

The examiners in ophthalmology for the Fellowship of the Royal College of Surgeons of Edinburgh appointed recently are: G. A. Berry, W. G. Sym, J. V. Paterson and G. Mackay.

Mr. E. C. Temple-Smith recently received the appointment of ophthalmic surgeon to the Liverpool State Hospital and Asylum for the Infirm in Sydney, New South Wales.

Dr. H. O. Reik and Harry Friedenwald are members of the honor committee of the Baltimore City Medical Society, which is carrying on a campaign against newspaper advertising of physicians.

The Pennsylvania State Medical Society has recently appointed a Commission for the Conservation of Vision. This Commission has begun its campaign by an attack on the roller-towel and wood alcohol.

Dr. Arthur H. Benson, well-known as an ophthalmologist in Dublin, died recently in that city from heart disease. Dr. Benson was a Fellow of the Royal College of Surgeons in Ireland, ophthalmic surgeon to the Royal City of Dublin Hospital and to the Royal Victoria Eye and Ear Hospital.

Prof. Allvar Gullstrand of the University of Upsala, Sweden, received the Nobel Prize for his work in ophthalmology. Among his published works are: *Die Optische Abbildung im Heterogenen Medien; Die Dioptrik der Kristalllinse des Menschen; Die Reele Optische Abbildung.*

Dr. William A. Young, Newport, has been appointed surgeon-in-chief of the Cincinnati division of the Chesapeake & Ohio Railroad, and Drs. Carey E. Wamsley, Newport, and S. P. Garrison, Bellevue, have been appointed assistant surgeons.

Dr. John W. Scott, Lexington, while on his way to New York, was stricken with appendicitis and was operated on in a hospital in Altoona, Pa.

Dr. J. T. Crice, assistant superintendent of the Central Kentucky State Hospital, Lakeland, has resigned.

Dr. Henry G. Hartman, Louisville, is suffering from septicemia following an injury to the right hand received while cranking his automobile.

TRACHOMA.

At the regular bimonthly meeting of the Kentucky State Board of Health held in Louisville, November 14, one of the principal matters discussed was the report of Passed Assistant Surgeon John McMullen, U. S. P. H. Service, on trachoma as it exists in the mountains of Eastern Kentucky. The investigation consisted of six mountain counties and one adjacent county. In all 3,974 persons were examined, 12½ per cent of whom were found to be suffering from trachoma. For the purpose of this report, diagnosis was made only in positive cases, the suspicious or possibly incipient cases not being included. In Knott county about 18 per cent were affected by the disease, including two out of twelve school children. In 400 persons not in schools, 102 cases of trachoma were found. In about 1,059 individuals examined in this county, 221, or about 20 per cent, were found to be suffering from trachoma. In the schools the percentage of trachoma varied from 2 to 44 per cent, with a general average of about 18 per cent. In Perry county 310 persons were examined, 52 of whom, or about 16 per cent, had trachoma. In Breathitt county out of 614 persons examined, 12 per cent were found to have trachoma. In Lee county, out of 668 pupils examined, 8 per cent were found to have the disease. In Clark county, in the Blue Grass region, in eleven schools containing 436 children, about 3 per cent were found to have trachoma. The cure of existing cases is a problem which will require time and money. It was suggested that if possible a clinic, such as is now being held by Dr. J. A. Stucky in Lexington under the auspices of the W. C. T. U. Settlement School at Henderson, Knott county, should be established, that accurate records should be kept of the cases, and district nurses sent to follow the patients up and see that the directions of the physicians are carried out. A system of movable or field hospitals should also cover the same territory periodically, in order to see the old patients and also any new

patients, just as is now being done in the hookworm dispensary system.

The State Board of Health has decided to petition the United States Public Health Service to detail two men and such aids as may be necessary, to establish a series of dispensaries in cooperation with the Rockefeller Sanitary Commission and the State Board. In these dispensaries attention should be given to trachoma, tuberculosis, hookworm, pellagra and typhoid fever.—*Journal A. M. A.*

BOOK NOTICE.

Ophthalmic Nursing. By Sydney Stephenson, M. B., C. M., F. R. C. S. (Edin.), D. O. (Oxon.), Editor of The "Ophthalmoscope," Ophthalmic Surgeon to the Queen's Hospital for Children, London, etc. Third Edition revised and enlarged. With eighty Illustrations. LONDON, The Scientific Press, Limited, 28 and 29, Southampton Street, Strand, W. C. (*Three Shillings and Sixpence net.*) 1912.

Kern and Scholz. Visual Test Charts: Third Edition. Has been recently published by August Hirschwald. Price M. 3 (Seventy-five Cents).

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.) G. W. Mahoney (Poli.)	*Geo. F. Suker (P.G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	Brown Pusely, N.W.U. Every day, 10-12 A.M.					
	H. W. Woodruff (E. E. N. T.)	A. G. Wipperr (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wipperr (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipperr (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. B. Williams (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. B. Williams (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	E. V. L. Brown (Inf.) W. A. Fisher (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. B. Williams (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E.E.N.T.) E. K. Findlay (P. & S.) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. B. Williams (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E.E.N.T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.G.)
4 P.M.	W. F. Coleman (P.G.)	C. W. Hawley (P.G.)	G. F. Suker (P.G.)	C. W. Hawley (P.G.)	W. F. Coleman (P.G.) Brown Pusely (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honore Streets.	Poli.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets. Clinics all day.	Ills. Med.: Illinois Medical College, 182 Washington Blvd.	P.G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1418 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2431 Dearborn Street.	

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXII

CHICAGO, FEBRUARY, 1913

No. 2, New Series

ORIGINAL ARTICLES

PROTECTION OF THE EYES OF SCHOOL CHILDREN.*

NELSON M. BLACK, M. D., AND F. A. VAUGHN, CONSULTING
ENGINEER.

MILWAUKEE, WISCONSIN.

This discussion† is prompted by the feeling that, by proper co-operation between educators, ophthalmologists, illuminating engineers, publishers, and others, reading matter in the form of school books, and the illumination of the school rooms by daylight and by artificial light can both be improved to such an extent as to materially protect and preserve the eyesight of school children, to the inestimable advantage of the present and future generations.

The Committee on Course of Study of the Board of Edu-

*The original draft of this discussion was read before the Milwaukee Medical Society, at Milwaukee, Wisconsin, February 13, 1912. It has been revised and expanded for this issue.

†The subjects treated in this discussion are of general interest and have received some attention in the past at the hands of investigators.

In order to obtain the view point of the general reading public, this issue is constructed so as to embody experimental suggestions—not recommendations—and is therefore printed on paper of different tints and qualities. The tinted papers, as well as the unglazed white, are a stock bond paper, called Crystallite Bond, of gray, russet, white and india tints, respectively, which are submitted to your judgment.

This kind of paper is of good durability and on account of its specific lightness in weight per unit sheet, is commercially economical, in spite of its relatively high cost per pound, if suitable otherwise. A more matt surface could be produced on this paper on special order. It has been gratuitously furnished by the Neenah Paper Co., of Neenah, Wisconsin, for this experiment.

The style of type used is 8 point old style for the small, and 10 point modern for the large, being the regular type used for the Ophthalmic Record, without special selection.

The ink used throughout the journal is "Quality Black."

The super-calendered white paper section consists of sample pages of the regular stock used by this journal and is a very common example of objectionable, glare producing, reading surface.

The authors have published other addresses and discussions on different sample papers, the illustrations of which are made by the offset and other processes. Copies of these will gladly be sent gratis to those interested.

Any comments, criticisms and suggestions on these subjects are cordially solicited by the authors.

cation of New York City says, in the Journal of the Board of Education, 1908, page 2324:

"It is a well established fact that myopia among children grows in frequency of occurrence with each completed school year, and that it increases in frequency as additional book work and written work are imposed on the pupils by school requirements. It is, furthermore, agreed that much suffering, due to myopia, hypermetropia, astigmatism and asthenopia, is caused by the non-discovery of these troubles in their first stages; that not only are parents and teachers very frequently ignorant of the presence of these eye defects in the child, but that the child himself does not realize that his eyes are defective, and that his disinclination to study is sometimes due to one of these imperfections, undiscovered, and hence uncorrected. It must be remembered in this connection, however, that disinclination to study and defective vision are not necessarily associated, unless the defect is serious. As only five per cent of all cases of myopia are believed to be due to unpreventable and uncontrollable causes, and as a great majority of cases of myopia are more or less directly traceable to eye-strain in school, it becomes a matter of duty for parents and school authorities to remove or modify, so far as possible, all controllable conditions that tend to impair eyesight during school years. It is impossible to dispense with the teaching of reading and writing, but it is possible to improve the physical conditions under which reading and writing are being done. The kind of paper used in readers and copy-books, as well as the amount of reading and writing done, are among the conditions which can be controlled and regulated. Furthermore, it is possible to detect existing ocular diseases and to adopt means calculated to give relief."

Dr. Frank Allport was the pioneer in the introduction of the examination of eyes of school children. The result of his work in the schools of Minneapolis, Minnesota, in 1895 showed that 32% of the school children had defective eyesight to a greater or less degree. As a result of his efforts examinations of the eyes of school children are being carried on throughout the entire country.

The Illuminating Engineer of September, 1911, copies the following suggestions, regarding the "remediable causes of eye-strain in present school conditions," embodied in the report of the Association of Woman Principals of the Public Schools of New York City, which had a number of items relating to the subject under discussion. (See Journal of Board of Education of the City of New York, April 22, 1908, page 623.)

"1. That hereafter no calendered or coated paper be permitted in the text-books given to the children, as the dazzle of such paper is injurious to their eyes.

"2. That half-tone pictures be not permitted in school books, but that simple, easily seen outline pictures be substituted for them.

"3. That the length of line in school books be from a minimum of 2½ inches to a maximum of 3 inches.

"4. That the space between lines be not less than 3 mm.

"5. That in reading, the children hold their books at an angle of approximately 45 degrees, and that in oral reading they be required to look up frequently.

"6. That after a lesson demanding close work the children be

asked to look up at the ceiling, or out of the window, to change the focus of their eyes and rest the muscles of accommodation.

"7. That classrooms be equipped with loose chairs of different sizes so that the children may sit in seats that fit them, placed where they can see best.

"8. That in the first two years of school, all writing be upon the blackboard instead of upon paper.

"9. That all rooms in which artificial light is burned continually, be closed.

"10. That no part-time classes be permitted to occupy any room in which the light is not entirely satisfactory.

"11. That electric bulbs used in lighting classrooms be made of frosted glass, and that clusters of such bulbs be provided with pale amber shades to screen the pupils' eyes from the direct rays of light."

As these suggestions have since been acted upon by the New York educational authorities (See Journal of the Board



Fig. 1. Example of half tone reproduction with 100 mesh screen.

of Education of the City of New York, December 9, 1908, and also an article on Artificial Lighting of the New York City Public Schools, by S. A. Thomas, in "Good Lighting," December, 1912, page 521) and form a good basis for discussion, the present writers wish to make the following criticisms and additional remarks, with reference to them from the view point of the ophthalmologist and the illuminating engineer:

(1) The suggestion of avoiding the glare from glazed, or calendered, paper in school books cannot be too highly commended and a point immediately presents itself for consideration as to whether it would not be better to go still further and

have the paper a light tinge of amber, or other hue, or perhaps better still, have alternate pages of different tints. The reason for making such a suggestion is this: Some time ago, one of the writers, while reading proof (which is usually printed upon grayish white uncalendered paper) with apparently perfect comfort, suddenly came upon two or three pages printed upon a light yellow, or amber, tinted paper about the color of the tissue paper upon which duplicate train orders are written. The feeling of ease and comfort to the eyes was so marked that it was startling, especially so as there had been no sense of discomfort noticeable before. That changing from the tinted sheets back to the white sheets again *did not* seem to produce any discomfort, was also noticeable. The experiment has since been tried many times, always with the same effect, i. e., the sense of ease and comfort when the amber tinted sheets were substituted. This may, of course, be an individual peculiarity, but it would at least be interesting to learn how it would effect others, and what two tints would be best.

(2) While every reasonable effort should be made to eliminate specular reflection, or glare, from the surface of school books, it is believed that a satisfactory quality of paper can be secured and utilized which will, at the same time, produce very attractive half-tone pictures, the proposed elimination of which from school books would, it seems to the writers, be little short of a calamity from an educational standpoint.

It is not deemed possible that the educational value of any simple outline picture of, for instance, a famous piece of statuary, a painting, or a wild animal, could be compared with a modern, well made half-tone, especially if made by the offset process of printing on matt surfaced paper.

This statement is not intended to depreciate the artistic and educational value of outline drawings, as exemplified by the sketches and etchings of great artists; but it is believed that the half-tone in its various forms is capable of producing with less talented artists and less expense, a more accurate representation than any other process. While these characteristics make the half-tone particularly suitable for use in school books, it is of course quite as essential that line drawings supplement them—the elimination of either form of illustration would be undesirable. The modern books for school use and childrens' reading are particularly valuable, attractive and interesting because of their profuse illustration by means of the half-tone.

It is certain that by proper investigation a satisfactory

combination of half-tone and print could be secured with a sufficiently matt surfaced paper of comfortable tint to be worthy of general adoption; especially when advantage is taken of the fact that experimental data tends to show that the more diffused the light in the room, the less objectionable the dazzle, or glare, from the paper becomes. It would, therefore, seem reasonable to expect a tinted paper, with the characteristics of a matt, or uncalendered surface, used under the indirect system of illumination, or some system approaching it in diffused characteristics, would give excellent results and still save the half-tone from exile.

Dr. Geo. P. Barth, chief medical inspector of schools of Milwaukee, Wisconsin, mentions one consideration with respect to the books for school children which is not touched upon and which seems quite important, i. e., the thickness of the paper used in books. This should not be under 0.075 mm. Furthermore, the paper should not contain a large amount of wood pulp, as it causes it to be too transparent. The type impressions on such paper also causes elevations to appear on the opposite side, interfering with the legibility of the print on that side. Javal (*Les Livres Scolaires et Ala Myopie*) proposes paper of a yellow tone and Weber proposes a grayish tinge, but the Elasser Commission (Ref. *Vierteljahrschr. f. Off. Gesundheitspflege*, Bd. XIII, P. 432 et 101), after trial, advises against both in favor of a pure black ink on a pure white surface. Cohn (*Lehrbuch der Hygiene des Auges*, 1891, P. 486) comes to the same conclusion.

Miss B. E. Roethlein, in the *Legibility of Different Faces of Printing Types* (Clark University Library, Vol. 3, No. 1, 1912) says:

"This question (of dependence of legibility upon quality and texture of paper) has been raised in various forms in the history of the art of printing. Many years ago Babbage recommended the use of slightly yellowish paper for the manufacture of books; and indeed he succeeded in persuading a publisher to produce a book of logarithms in accordance with this recommendation. More recently Javal has advocated a similar innovation, urging that such a plan would minimize the disadvantage to which the reader is subjected on account of the intensive contrast between the black ink and the white paper which are in general use. It is impossible, from data available in the literature of this and cognate topics, to determine whether this Babbage-Javal suggestion is really of value. But such results of the present investigation as have a bearing upon the question would seem to indicate that little or no improvement of legibility is to be expected from progress in this direction."

"It does not seem," says F. M. Urban, "that this Babbage idea was intended for ordinary books which are read in the customary way, but for reference books only, which like tables of logarithms, must be consulted a great many times and where the information re-

quired must be picked out from a great number of similar data. It seems that Babbage's idea has stood the test of experience and is now past the experimental stage. The geographical survey of the French army (service géographique de l'Armée) publishes logarithm tables which make use of Babbage's suggestions. All these tables are printed on colored paper which is absolutely dull, so as to avoid the glare of reflected light. The tables which are most frequently used are printed on slightly yellowish paper; and only the tables of the trigonometric functions in the hexagesimal division of the circle are printed on blue paper in order to make these tables easily recognizable. The success of this plan is indisputable. The first edition of the tables with five places was soon exhausted; a new edition had to be issued in 1906, which, except for the elimination of a few misprints, is an exact reproduction of the first.

"These tables are superior in many respects to the ordinary tables, so that one cannot attribute their success to any particular feature. The fact, however, that the colored paper is used in both editions suggests that this innovation has proved to be useful. Anybody who is sufficiently interested can easily verify the superiority of the tables of the French survey by the following experiment: Use these tables the first evening for from two to three hours, and on the following evening repeat the calculations with any other logarithm table. The mental strain and the fatigue of the eyes will be considerably greater in the second case. I called the attention of several of my friends to these tables and they all agreed as to their superiority—a testimonial which found its realistic expression in the purchase of a copy of the book by those who have to use logarithms a good deal."

A very lively discussion of the advisability of using black paper with white letters was indulged in at great length a few years ago. One difficulty encountered here is the fact that a suitable black paper is rather hard to produce. Tints, however, make it possible for paper-makers to economically utilize their stock with minimum waste and labor.

(3) Why the length of lines should be "from a minimum of $2\frac{1}{2}$ inches to a maximum of 3 inches" is not understood, as certainly the lateral movement of the eyes in passing over a line 4 to 6 inches long is not a tiresome, or injurious, proceeding. On the contrary, the movement of the ocular muscles in carrying the visual axis to the end of a long line and then back to the beginning of another line gives a greater range of movement to the eye, which is certainly easier than short, rapid oscillations. It also allows a greater length of time for rest of the perceiving elements of the retina, if not an actual rest of the accommodative effort.

It is true that, with small faced type used in text with the words close together and small space between the lines, there is difficulty in picking up the succeeding line when the lines are over three inches long. This difficulty is not encountered when the proper style of type is used and there is sufficient space between the letters, words and lines.

(Exemplify the points discussed in this paragraph by

comparison of the different sizes of type, with different spacing, used in this, the former and the following paragraphs.)

(4) The space of 3 mm. between the lines is suggested, but nothing is said of the size or form of the letter, or type, or the space between letters and words, which certainly is of equal importance.

Katherine D. Blake, chairman of the Committee on Children's Welfare, which submitted the above ten recommendations, says in an explanatory letter:

"The physicians accepted recommendation No. 3 as prepared by my committee, but No. 4 did not satisfy them. As originally prepared it read as nearly as I can remember 'That the space between the lines be twice the height of the capital letters.' They thought this vague, so the Advisory Council substituted the 3 mm. of the metric system. The Committee on Children's Welfare accepted the change, and that is why the two systems of measurement appear in the report."

"It seems that this difficulty of keeping the eye on the same line depends on two factors, the amount of space between the lines and the number of lines which are grouped together. Mistakes are rare if the lines are very far apart; but they seem to become more frequent with decrease of the space between the lines. It is, therefore, a legitimate question to ask, what is the minimal space between the lines which is compatible with accurate reading? Another important point to consider is the amount of fatigue produced by different types and by different spacings." (F. M. Urban, Remark on Legibility of Types.)

Miss Roethlein conducted, at Clark University, as exhaustive a test as has been made public on the Relative Legibility of Different Faces of Printing Types and the conclusions are given below. While much more may and must be done in this line by ophthalmologists and illuminating engineers, as well as psychologists and publishers, the contribution is an addition to this subject that is worth while.

"V. CONCLUSIONS:

"1. Certain faces of type are much more legible than other faces; and certain letters of every face are much more legible than other letters of the same face.

"2. These differences in legibility prove to be much greater when letters are presented in isolation from one another than when they are presented in groups.

"3. Legibility is a product of six factors: 1, the form of the letter; 2, the size of the letter; 3, the heaviness of the face of the letter (the thickness of the lines which constitute the letter); 4, the width of the white margin which surrounds the letter; 5, the position of the letter in the letter group; 6, the shape and size of the adjacent letters. In our experiments, the first factor seemed to be less significant than any of the other five, i. e., in the type-faces which were employed in the present investigation, the form of any given letter of the alphabet usually varied between such narrow limits as to constitute a relatively insignificant factor in the determination of its legibility.

"4. The relatively heavy-faced types prove to be more legible than the light-faced types. The optimal heaviness of face seems to lie in a mean between the bold faces and such light faces as Scotch Roman and Cushing Monotome.

"5. The initial position in a group of letters is the most advantageous position for legibility; the final position comes next in order of advantage, and the intermediate, or internal, positions are least favorable for legibility.

"6. The size and the form of the letters which stand adjacent to any given letter play an important role in determining its legibility; and the misreadings which occur in the case of grouped letters are of a wholly different sort from those which occur in the case of isolated letters. When letters of the same height, or of similar form, appear side by side, they become relatively illegible. But the juxtaposition of an ascender, a descender and a short letter tends to improve the legibility of each, as also does the juxtaposition of letters which are made up wholly, or chiefly, of straight lines and letters which are made up wholly, or chiefly, of curved lines.

"7. The quality and the texture of the paper is a much less significant factor than has been supposed—provided, of course, that the illumination and the inclination of the paper are such as to secure an optimal condition of light reflection from its surface.

"8. There is an urgent need for modification of certain letters of the alphabet."

Prof. Snellen found that letters whose height and width subtended an angle of 5 minutes and the width of whose component parts subtended an angle of 1 minute could be easily



Fig. 2. Example of reproduction of wood line cut.

seen by the average normal eye. Although many eyes, especially in young people, will be found to have an acuteness of vision greater than this, it has been found to be a convenient and satisfactory standard of visual acuity and has been generally adopted by ophthalmologists as such. The size of the letters might, therefore, conform to the average visual angle at the distance used; that is, each stroke of the letters might subtend an angle of 1 minute at the average reading distance of 33 cm., the whole letter subtending an angle of 5 minutes. This conforms to the Snellen Optotype and the various charts used to test the visual acuity in common use by ophthalmologists.

It is suggested that the space between the letters and words might be indicated by the report of the Committee of the International Congress of Ophthalmology at Naples (1910). In their decision the ability to distinguish points separated by an angle of 1 minute was adopted as a standard of normal visual acuity.

This may be tested by two black dots on a white ground, each dot a circle subtending an angle of 1 minute, with a space equal to the diameter of each dot, between them. This is interpreted by the writers to mean two black discs, rather than circles, each one minute in diameter, the edges of which are separated by a one minute angle.

(5) Involuntarily, in reading, one will shift the angle of one's book or paper until sufficient illumination is secured and the glare or dazzle on the paper has disappeared or passed out of the area one is observing. Would it not, therefore, be more suggestive to teach the pupils the proper method of quickly discovering the angle at which least glare and best illumination is secured and the rudimentary principles involved in this suggestion, and not restrict them to any definite position? They might be trained to intuitively adjust conditions most suitable to their individual requirements. The 45 degree position suggested by the report might easily be the one at which the greatest specular reflection and glare are obtained.

(6) The editor of the *Illuminating Engineer* says, "The suggestion that children look up at the ceiling or out of the window to rest the eye, is not clearly evident. The windows are the most brilliantly illuminated area in the school room, and the ceiling generally white and the next most brilliant surface. While looking into the distance changes the focus of the eye, looking at the window would necessitate a change in the pupillary opening, while looking at the ceiling requires an unnatural movement of the eyeball. It would seem a much more effective method to simply close the eyes and place the hands over them, thus giving them absolute rest. This is something that we do involuntarily when the eyes are overstrained by overwork."

This suggestion brings to mind a recent paper by Dr. W. H. Bates, on "Prevention of Myopia in School Children" (*New York Medical Journal*, July 29, 1911), who found in 1903 in the examination of 1,500 school children (at Grand Forks, N. Dak.) 6 per cent myopic.

He concluded, that children have found from experience that to accomplish most things an effort was required; that in viewing most near objects a voluntary effort of accommodation made them more distinct, and that most of them made an accommodative effort when looking at the blackboard or distant objects in the school room instead of relaxing the accommoda-

tion or allowing it to relax. An attempt to see distant objects with the eyes focused for near objects resulted in functional myopia. Bates demonstrated this condition with the retinoscope in eyes which showed normal vision tested with Snellen test types, when the child regarded a picture, map, writing on the black-board, a person or some object with which he was familiar at the same distance the test types were located. He states that the Snellen test types "enabled the pupil to know when an improper effort to strain, or see, was made. It was only when the eyes were properly adjusted for distant vision that the small letters were read. With other distant objects children had greater difficulty in knowing when the focus was adjusted accurately."

At Bates's suggestion, Snellen test types were placed in all the rooms in the Grand Forks schools with directions for their use. The results were so encouraging that the method has since been employed continuously and the 1910 examination of 2,000 children showed less than one per cent myopic.

Edgar Bates, in an article entitled "Eye Strain Among Public School Children," (*Ophthalmology*, January, 1912) brings out a thought which, it would seem, strengthens the idea advanced by his confrere of the same name in New York.

"That the so-called error of refraction is but one of the causes of eye-strain is evident from the fact that eye-strain may occur when the error of refraction has been corrected and also that the emmetropes may suffer from eye-strain. It seems to the writer that one should look upon emmetropia as a pathological condition brought about by the effects of eye-strain upon an eye that was originally hyperopic. For which reason it needs all the more careful watching, for an emmetropic eye may easily shoot over into the condition known as myopia."

Viewing objects in the distance allows of relaxation of the muscles of accommodation and therefore requires no physical effort, while the use of the eye at close range requires a physical effort to bring about accommodation.

Why would it not be better then, instead of directing the children to look at the ceiling or window, to have the Snellen letters displayed in the school rooms, where all could see them and rest the eyes after a peirod of close use by attempting to read the letters upon the card? The Snellen letters need not necessarily be used; any visual acuity test object, such as the series of standard broken rings as advocated by Landolt and Jackson, or Wolffberg's modification of test type, etc., could be used.

(7) The position and type of furniture used in the school

room is perhaps too largely governed by the rules of discipline and other factors to be within the scope of this discussion.

(8) The suggestion that, in the first two years of school, all writing be upon the blackboard instead of upon paper called forth the following comments from the Committee on Courses of Study:

"The recommendation would have greater weight if it had suggested that much more (instead of all) of the writing in the lower elementary grades than is usually found should be done upon the blackboards rather than upon paper. There are certainly great advantages in having more of the writing in the lower grades upon blackboards. The suggestion, however, that pupils in grades of the first two years be required to confine all writing to the blackboard, instead of having a portion of it upon paper, is one that your Committee cannot indorse."

Dr. J. N. Rhoades, in a paper read before the Medical Society of Pennsylvania, on "The Blackboard Evil, the Remedy; The Copy-book Evil, the Remedy," states his views on the relative advantages of the use of the blackboard and the copy-book for the teaching of writing.

He first refers to the glare from the ordinary blackboard and suggests as a remedy "hanging the blackboard out of plumb" to prevent the incident ray from being reflected into the pupils' eyes. He states further that:

"Another important part of the blackboard evil is the absence and ignoring of rules for regulating the size of blackboard writing and drawings. If blackboards must be used, then it is necessary for the letters, drawing and writing put upon them to be made large enough for easy reading by the most distant pupil in the room. Each stroke should exceed the one minute angle as seen from the farthest desk. A table of instructions should be hanging by the side of every blackboard, which should show the size of strokes and writing that could be easily read at five feet, ten feet, twenty feet, and even fifty feet.

"All teachers in medical and scientific schools and, in fact, all demonstrators, whatsoever, should understand and heed this rule. Moreover, the candidates for teachers in the normal schools and in the schools of pedagogy should be thoroughly taught the one-minute-angle law, so that it will be perfectly natural for all teachers to draw individual lines which can be easily seen from any school desk. These strokes of drawings and writings should not barely pass the one-minute-angle test for distance, but should generously err as to size.

"In the whole school curriculum there is nothing more injurious to a child's eyes than copying handwriting from the blackboard. In truth, it is little less than a crime to teach script writing from the board. Take, for example, a child situated forty feet away from the board, and each script letter made on the board for that child to see must have strokes a quarter of an inch wide. The height of the letter to conform to the thickness of the strokes would have to be five or six inches, because, be it understood, the faintest hair line of the letter must be a quarter of an inch wide or it will not be perceptible to a pupil forty feet away with normal vision, let alone to those whose eyes are not quite normal.

"Penmanship should not be taught from the board. At least, it should not be copied from it. It might be permissible to demonstrate general curves and free-arm movements, but the student should copy

them on another board and make the characters of like dimensions.

"To teach handwriting properly I believe it to be absolutely necessary for the copy to be just the size of the intended imitation. The only place for the copy is close to the writing line, indeed so close that the point of the pen and the copy will be seen at one focus, and at the same time. In other words, the "copy line," and the writing line should never be more than *one inch apart*.

"The copy-book evil is just a little less malicious than the black-board evil. The average copy-book has a "copy line" at the top of its page, and each child is expected to look from its own writing to the "copy line" as it struggles along from letter to letter, curve to curve, angle to angle, and line to line, which it scribbles down the page.

"To recapitulate: I would remove the glare from *each* black-board. I would forbid the teaching of script from *any* blackboard. I would compel *all* demonstrators to make strokes large enough to be seen by their entire audiences. I would emancipate *every* child from the slavery of the copy-book evil by placing the copy within one inch of his pen."

This discussion of blackboards also brings up the question of the kind of blackboards and the suggestion of A. J. Marshall in the *Illuminating Engineer* (July, 1911) of "Green Glass Blackboards."

"Until comparatively recently most of the blackboards were made from slate and as a rule white chalk was used in the marking on same. Some time ago a firm began experimenting with black glass sheets, the exposed surface of which were depolished, which were offered as something to deplant the slate type of 'board.' The glass is non-absorbent, foreign matter not being able to enter any further into the slate than the mere depths of the pits (caused by depolishing the exposed chalk-dust writing surface); such being the case the glass is easily kept clean by using an ordinary dampened sponge or 'rubber.' If a lustre is wanted (glazed or polished surfaces for such work should be avoided) a little kerosene oil will suffice. The principal points of excellence of such glass boards are: sanitary feature; extraordinarily long life; they will not disintegrate; uniformity of structure; adaptability and perfect writing surface. These glass 'blackboards' have so far been put out solely in black glass and are used with white chalk as formerly."

It is suggested by Mr. Mashall that instead of glass "blackboards" dark green "boards" be used, and that *yellow* instead of white crayon be employed. "It is felt that such a combination would be more desirable from the physiological, psychological and esthetic viewpoints."

Dr. Barth says, "There is no question in my mind but that glass blackboards are the best. Slate and paper blackboards such as are usually used become gray with chalk dust after use, and the white chalk does not show up well."

The name, in the event of the adoption of the above suggestions, had best be changed to "writing board" or similar nomenclature.

The color of the surface and chalk to be used on the writing boards might well receive further attention.

(9, 10 and 11) Relative to the lighting of class-rooms, the editor of the *Illuminating Engineer* goes on to say:

"The use of frosted electric lamps is, of course, an improvement over the clear bulb, but even this and the use of amber shades is inadequate to produce a sufficient diffusion and softening of the light. As a general rule, it should be required that some means of diffusion be used which will entirely hide the form of the radiant."

There is no doubt that the intrinsic brilliancy of a bare filament from any source of illumination coming within the field of vision is a real source of irritation and has been proven experimentally to be a decided factor in reduction of the visual acuity, when such source comes within an angle of approximately 26 degrees with the visual axis, increasing with the acuteness of the angle. The same source of illumination having its rays properly diffused and defracted, but still within the visual field may not be as great an irritation, but will still be a disturbing factor and will effect visual acuity within the 26 degree angle. Besides, the means (usually dense diffusing glassware) taken to diffuse and defract the light will considerably reduce its intensity; possibly not to an extent sufficient to effect visual acuity, but enough so that it must be taken into consideration. Of course, the more efficient the enclosing envelope, the less effective a "glare absorbant" it is.

Efficiency, however, can be secured if ceilings are high enough to place the source well above the 26 degree angle, by using properly designed, open, directive reflectors, which sufficiently shield lamps of the bowl frosted type. Sometimes the design of the ceiling beam work, or arches, allows the reflecting units to be placed behind the beams, but usually this will subject the one in charge of the room, or class, to a very strong glare.

A word should be said relative to the suggestion that electric bulbs used for lighting class-rooms be made of "frosted glass." It is a well known practical fact that the electric lights with the entire bulb frosted depreciate in life and usefulness much more rapidly than clear bulb or the type known as "bowl frosted."

As it is believed that, as electric lights for use in these places should always be accompanied by some glassware with characteristics desirable for the specific purpose, there should be no occasion to use the entirely unshielded lamp bulb frosted. In the indirect, or semi-indirect systems, as well as in totally enclosing diffusive envelopes, the clear bulb should always be used.

It would seem that with the indirect method of illumination, where all of the light is directed by opaque reflectors, to

the ceiling and then diffuse reflected to the plane of illumination, the above mentioned disadvantageous factors due to intrinsic brilliancy of filament, other glare effect, or objectionable shadows, would be non-existent, as there is almost perfect diffraction and diffusion if properly planned and installed, while the color and intensity of the resulting illumination may be accurately controlled and the source is entirely hidden from view. Investigations by Cravath, Sweet and Rolph all tend to indicate that the visual acuity and ocular comfort are increased as the illumination is made more diffused.

In a paper entitled "Chromatic Aberration and Visual Acuity," (Electrical World, May 11, 1911) Dr. Louis Bell asserts that the elimination of chromatic aberration by use of a nearly mono-chromatic light source gives an actual increase in visual acuity, or, to use his own words, "the experimental fact certainly is that the mono-chromatic source enables equal acuity to be maintained at an illumination much lower than is necessary in the case of the light of the continuous spectrum." The writers question whether the increased acuity is the result of the elimination of chromatic aberration, or due to another factor, and have the same under investigation.

It may be developed that the color of the light reflected from the ceiling and the walls may be a great factor in the production of eye fatigue on account of the relative bleaching power of different portions of the spectrum on the visual purple of the retina. The action of light upon the visual purple is, according to the latest theory of vision, the active factor in producing visual sensations. (Edridge-Green, Theory of Vision—Lancet, Oct. 2, 1909). Excessive bleaching of this visual substance may mean eye fatigue due to inability to produce rapid enough regeneration. The control of the resultant illumination by proper tinting of reflecting surfaces brings up an attractive solution of this problem, which is being investigated by the writers.

The indirect method of illumination, if properly engineered, seems therefore to possess very desirable characteristics for the school room, where good visual acuity is imperative, and eye-strain or fatigue and depression of visual functions from the effect of glare, or other causes, are to be avoided.

Specular reflection from the surface of the paper or other polished surface is also minimized by the use of the indirect system of illumination, because of the absence of the exposed sources to cause specular images in the polished surfaces.

The so-called semi-indirect system would also have some advantages, as the major portion of the light should be directed to the ceiling as in the indirect system, while a smaller percentage should be allowed to reach the plane of illumination through diffusing glassware. The units must, however, be carefully designed and placed so that the sources may not become a real cause of difficulty, by allowing too much direct illumination to enter the eye within the "glare angle" referred to above.

Mr. Rolph presented a paper, investigating among other things, the most advantageous proportions of direct and indirect components of illumination, at the 1912 Convention of the Illuminating Engineering Society.

"Summing up the above considerations regarding all the advantages of diffusion due to a high indirect component of the illumination, i. e., elimination of glare from working surfaces, elimination of objectionable shadows and reduction of the brilliancy of the light-unit, we may state with reasonable certainty that these advantages are obtained to the most desirable degree when the direct component of the illumination is 15 per cent or less. If the direct component of the illumination is appreciably greater than 15 per cent, the advantages of the indirect component are apt to be seriously reduced. There is undoubtedly some value not far beyond 15 per cent at which the advantages of a high indirect component are so seriously reduced that the comparative inefficiency of this class of lighting is no longer justifiable on engineering grounds."

The coefficient of reflection, or the relative shades or tint of the walls and ceiling of the school room, and its relation to conservation of the eye-sight, should also receive the consideration of the decorator and architect.

In the above discussion no reference has been made to a very interesting phase of school illumination by daylight, and the subject should not be dropped without some remarks from this viewpoint being made.

At a New York meeting of the American Association for the Conservation of Vision, the following was given consideration:

"One direction in which the Association can perform useful service is indicated by recently published statistics showing an increase of defective vision among pupils of the public schools, the proportion of pupils thus afflicted increasing as the children advance in the grades. Here undoubtedly is evidence of school work performed under conditions harmful to the eyes, which should be corrected. In some instances it will be perhaps sufficient to call attention to a certain regulation of the window blinds at certain hours of the day. In others, the intervention of architects may be necessary to fit school buildings in the matter of lighting for the purpose for which they are occupied. Usually the trouble is that there is insufficient window space, but sometimes there have been found schools with too many windows in a room, giving a cross-light very trying to the eyes, or a light from the front as the pupils sit, whereas by preference it should

come from the side. Changing the position of desks often is sufficient to reduce danger to children's eyesight; now and then only is there necessity for changing windows. In the case of new school buildings the plans should be carefully supervised with respect to lighting arrangements by competent persons."

The use of prismatic glass or other prepared types of window glass, such as daylight prisms, may sometimes be used to re-direct the daylight rays when they would otherwise enter the school room at inefficient angles; or to project them into distant corners and faraway sides of the enclosures.

A few words on the factor of efficiency may be appropos. It would be a grave error in a case as important as the conservation of the eye-sight of our future nation to sacrifice beneficial, physiological or psychological results for high efficiency or financial gain, and it must be appreciated that any of the systems which keep the sources well screened from or out of the range of the eye may take more wattage to secure a definite result in foot-candles on the plane of illumination. Therefore greatest efficiency compatible with results desired is all that should be expected or demanded, and this can always be secured by the submission of the problem to a competent illuminating engineer.

This label has been adopted by the Board of Education of New York to be pasted in school books:

READ THIS FREQUENTLY.

1. Take care of your sight; upon it depends much of your safety and success in life.
2. Always hold your head up when you read.
3. Hold your book fourteen inches from your face.
4. Be sure that the light is clear and good.
5. Never read in the twilight; in a moving car; or in a reclining position.
6. Never read with the sun shining directly on the book.
7. Never face the light in reading.
8. Let the light come from behind you or over your left shoulder.
9. Avoid books or papers printed indistinctly or in small type.
10. Rest your eyes frequently by looking away from the book.
11. Cleanse your eyes night and morning with pure water.
12. Never rub your eyes with your hands, or an unclean towel, handkerchief or cloth.

THE TREATMENT OF PULSATING EXOPHTHALMOS WITH CASE REPORT.

BY FROST C. BUCHTEL, M. D., ASSOCIATE PROFESSOR SURGERY,
UNIVERSITY OF COLORADO SCHOOL OF MEDICINE; SURGEON
TO ST. LUKE'S HOSPITAL; ASSOCIATE SURGEON CITY
AND COUNTY HOSPITAL, DENVER, COLO.

Jos. G., aet. 11, operated upon August 13, 1912, St. Joseph's Hospital.

Family history negative. Previous history negative.

Three months before operation patient was struck on the head by a pitchfork and noticed thereafter a buzzing sound in



Aug. 13, 1912. Before operation.

the head which was followed in a few days by a protrusion of the left eye. He was treated expectantly by his family physician for three months.

I was asked to see the patient for the purpose of ligating the common carotid artery. Physical examination showed a well nourished boy, sound excepting the local eye condition and adenoids. There was well marked exophthalmos; the eyeball was pushed forward and downward. There was pulsation in the eyeball and a pulsating mass at the upper, inner angle of the orbit which gave a thrill on palpation. A continuous bruit with systolic accentuation could be heard distinctly over the brow and temple. The boy complained chiefly of the bruit, diplopia and headache. His facial expression showed that his suffering had been real and acute.

The history and examination led us to believe that we had to deal with a traumatic exophthalmos probably due to a rupture of the internal carotid in the cavernous sinus. The continuous bruit with systolic accentuation led us to consider this lesion as the most probable etiologic factor. In fact most

of the recently reported cases that have come to autopsy have shown either a rupture or aneurism of the internal carotid in the cavernous sinus.

Treatment: Rest, drugs and compression over the eyeball had all been tried with negative results. The two procedures considered were either to ligate the common carotid artery alone or with some of its branches or an orbital operation.

Although orbital operations for the treatment of pulsating exophthalmos have been known for forty years nevertheless the popular operation and the one almost universally advised has



Aug. 24, 1912. Eleven days after operation. Showing oedema.

been tying the common carotid or the common carotid with the internal and the external carotid arteries.

No one appreciates better than the general surgeon the gravity of this procedure. The mortality is rather above 10% than below. With such a mortality one should consider very carefully the result to be hoped for and expected. In the de Schweinitz-Holloway series 34 ligatures of the common carotid on one side are recorded with cure or improvement in only 50%, recurrence in 20%, negative results in 17% and death in 11%.

So far as I can learn two patients with pulsating exophthalmos (both unreported) have been operated upon here in Denver. Both were in the City and County Hospital and both had the common carotid artery ligated by the same surgeon. One patient, a Chinaman with a double pulsating exophthalmos, got a good result. The other patient died. A mortality here of 50%.

One of the most interesting cases reported is that by Von Prof. Dr. Oskar Zellar of Berlin. It illustrates very well the difficulty of cutting off permanently the circulation from one side of the head. The patient he reports had a traumatic pul-

sating exophthalmos. The protruding eye was first enucleated. The common carotid was then at a later time ligated with a relief of the symptoms. Then the symptoms recurred. In the next operation the internal and the external carotid were tied. Again the symptoms were relieved, to recur after a short time. His excellency Von Bergman then made an incision into the neck to ligate again any vessels he could find. The anastomosing vessels were so numerous that the hemorrhage was uncontrollable except by packing. The bruit was again relieved for a short time. Then an attempt was made to ligate the internal carotid proximally and distally to the cavernous



Dec. 4, 1912. Three months and three weeks after operation.

sinus. The old Pasquin operation, 1812, and of chief value in arterio-venous aneurism. The distal ligature was applied satisfactorily. The proximal ligature was passed and the assistant pulled sharply on the end of the ligature and cut the internal carotid artery in two. It was impossible to catch the divided artery so the wound was packed, but the patient soon died. When he submitted to the last operation he said he would rather die than have the continuous bruit.

At the regular meeting of the Chicago Surgical Society April 5th, 1912, Dr. Phemister reported a case of pulsating exophthalmos in which Dr. Halstead ligated the internal carotid artery. Dr. Bevan in discussing the report mentions a traumatic case with recurrence after apparent cure following ligature of the common carotid. On the second operation ligating the internal carotid, he says "I pretty nearly killed him. He had aphasia and had hemiplegia and at the time of the operation I noticed this very interesting fact: where I had ligated the common carotid and followed it by the ligature of the internal carotid on that side the internal was quite as large as a normal internal carotid, and that had been maintained by the free

anastomosis from the branches of the external carotid on the other side with those of the involved side. Right at the juncture of the internal and external carotid there was a well marked leak and the internal carotid maintained by the free anastomosis."

The members of the Chicago Surgical Society present at the meeting above referred to seemed to be unaware that there was any method of treatment of this condition other than the ligation of the great arteries in the neck. It quit frequently happens that custom or the association of a well known name with an operation will continue an inferior practice when better results could be gained with a simpler procedure. Hunter's name made his method of ligature popular, when better methods were known. Custom is the only authority one can find now for ligating the common carotid for pulsating exophthalmos.

Lansdown, Noyes, Woodward, Szimanowsky, Golowin, Lasereu, Boden, Dollinger, Wiesinger, Sattler, Burghard and Pritchard, and Gifford have all done orbital operations successfully for this condition: some of them being done after the unsuccessful ligation of the carotid. Yet it seems that these operations have not been given sufficient prominence to change the customary method of treatment. The operation is very simple, merely the distal ligation of the veins in the orbit and the mortality should be almost nil. I was unable to find the details of any of these operations so I shall describe the operation in detail.

The eyebrow was shaved. General anesthesia used. An incision in the eyebrow two inches long made from a point very near the middle line. The skin flaps were turned up and down. Many dilated superficial veins were cut which required ligature. The angular vein and superficial temporal were both dilated and were cut. The superior ophthalmic formed by the junction of the two radicals above named was followed into the orbit, back as far as possible without damage to the eyeball and ligated with plain cat gut. A piece of gauze was now placed over the eye and Dr. D. H. Coover listened with a stethoscope and reported that the bruit was entirely absent. A subcuticular stitch of plain cat gut brought the skin surfaces together.

Following the operation considerable oedema of the eyeball developed. The conjunctiva of the lower lid protruded as

a definite fold and was punctured on two occasions. Aside from this the treatment was merely cleansing—boric stipes and washes and argyrol instilled in the eye. The patient was kept in bed a week. He left the hospital in two weeks. On leaving the hospital the exophthalmos was not improved, if there was any change it was greater than before the operation. There was still some oedema of the conjunctiva. This oedema lasted a month in all. A definite thrombus could be palpated in the top of the orbit during this time. It felt like a hard cord extending back as far as the finger could reach.

There was no bruit after the operation and no pulsation after the operation. The exophthalmos has gradually diminished until now, three months after, there is practically no difference between the two eyes.

The vision as reported by Dr. D. H. Coover is 20/20, no diplopia, background of eye normal.

Dr. Edward Jackson finds no abnormality in the background of the eye and a protrusion of only 6-1/2 millimetres. This is an improvement of 3 millimetres in the last month.

The scar is a mere line and is concealed by the eyebrow so that the closest observation is required to detect it. The boy is well and furthermore he was not subjected to a hazardous operation.

HOLE AT THE MACULA.

C. A. CLAPP, M. D.

BALTIMORE, MARYLAND.

There has been considerable literature upon this subject within the last thirty years and yet very few text books mention the subject.

I am very proud to know that American ophthalmologists were the first to describe the condition while as usual priority is claimed in the old country.

Knapp in 1869 was apparently the first to report the condition in a patient who had been struck with a clod four weeks previously and which presented ophthalmoscopically the appearance of a macular hemorrhage with a raised border.

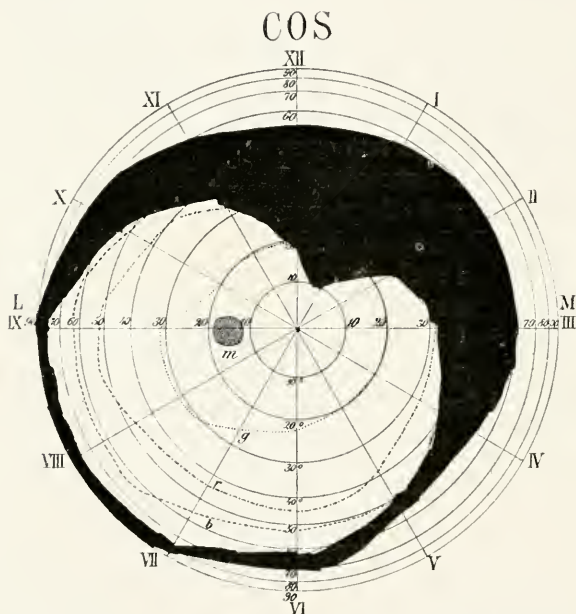
Knapp apparently misinterpreted his findings, if this were a true hole of the macula, but Noyes in 1871 described a case which was so characteristic that one even to this day will describe his findings in the same language.

His case was seen three years after being hit with a cork from an ale bottle.

In 1900 twenty-seven cases were added by Collins, Ogilvie, Kuhnt and Haab.

In Ogilvie's cases, nine out of the ten gave a history of injury, and he believed that all were caused by injury while Kuhnt reported four cases in which three seemed to be excluded from the injury class.

Haab reported twelve in which three were without history of injury, and mentions a case with arterio-sclerotic changes and albuminuria.



Possibly the most interesting report was by de Schweinitz in 1904 in which he reported two cases. One had well marked arterio-sclerosis with some aortic obstruction while the other case followed nine months after a serous iritis with a hole at the right macula, but with no change in the left fundus. In about a year there appeared macular degeneration at the left macula which developed into a hole similar to that in the right. This probably is the only case of a hole developing under observation.

Zentmayer in 1909 reported two cases rather briefly. The first a case of secondary glaucoma following an injury while the second case gave a history of injury in childhood. This case had a fluffy area of connective tissue situated a short distance above the macular depression.

The case which I wish to show you and place on record came with the following history:

Colored man, J. M. Age 35.

Past history.

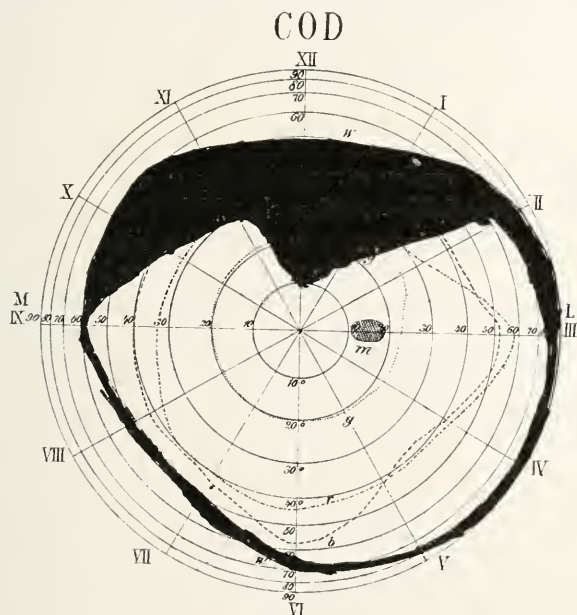
Was struck by piece of wood over right eye two years ago since which he thinks he has not seen so well.

Present history.

Does not seem to see so well out of right eye and has floating mist.

Objective examination.

Nothing abnormal in exterior examination except that



when fixing the eyes seemed to be tilted slightly upward, as if the macula were above its normal position. Pupils were normal in size.

✓O. D.=15/100.

✓O. S.=15/200.

Pupils were dilated with atropin and the ophthalmoscope showed in O. D. a large oval excavation about 1-3 the size of the nerve head, situated a little below the macula and inward towards the nerve. The long diameter of the oval extended upward and outward and downward and inward.

The excavation seemed to be at least one millimeter deep with very precipitous sides, but no line of pigment at its margin.

The retina surrounding it was yellowish in color and seemed to have a predominance of the fibrous element; the floor was mottled in appearance but no vessels could be made out. Around the periphery of the fundus there was a very marked punctate condition of the retina.

The left eye showed a similar excavation although not quite so large and being slightly above the nerve level and position of macula. The long diameter also extending upward and outward and downward and inward. No definite macula could be made out in either eye.

In the periphery of the left eye there is marked pigmentation seemingly in the retina as the retinal vessels are covered in places. The retinal vessels are very tortuous in the periphery almost suggesting a detachment.

There are cholesterol crystals in the left vitreous with some deposits in the retina.

Retinoscopy under atropin shows a + 2. sph. in the right eye with a +5.50 = +.50 cyclax 90 in the left eye although fixation was faulty and on a new fixation there was a marked changing of the findings. Javal was negative in each eye.

With the trial lenses the best vision that could be obtained was a +1. sph. O. D. 15/70 and a + 4 sph. O. S. 15/100.

This was given for close work but he came back in three weeks saying he could not see close and that a +4. in the right made him see better, which was ordered.

The fields show quite a marked contraction especially in the upper and nasal field.

No positive scotoma could be detected although the fields are very faulty due to the uncertainty in the fixation.

The diagnosis of hole at the macula is based upon its position being at or very close to the macula, in its shape, either perfectly round or slightly oval and in the appearance of the surrounding retina having a yellowish or grayish appearance.

The bottom of the excavation being dark red and mottled in appearance, which distinguishes it from an atypical macular coloboma in which there is an absence of the choroid also.

The pathology has had various contributors: Pagenstecher and Geuth first studied it briefly with the microscope in 1875. Their case showed an oval defect at the macula with extensive chorio-retinitis.

Fuchs in 1901 examined microscopically the macula of an eye which had been struck five months previously and found

a cystic degeneration at the macula, with absence of the ganglion cell, inner nuclear and inner reticula layers for 0.34 mm.; the outer nuclear layer and limitans externa being preserved.

Coats in 1908 reports minutely the findings in four cases which he believes belong to this condition.

Case I. An eye lost by gunpowder explosion with loss of light perception in three months.

There was cystic degeneration at the fovea with absence of some of the layers around.

Case II. An eye lost with irido-cyclitis following cataract extraction and enucleated 4 months after.

This showed a complete gap at the macula of 0.77 mm.

Case III. Right eye lost with chronic uveitis and enucleated. Microscopically it showed irido-cyclitis in the anterior half, with extreme cystic degeneration of the retina over the whole posterior pole with two large cystic areas at the fovea.

Case IV. Ruptured eye ball from fall, bare perception of light. Microscopically it showed a small tear at the fovea 0.085 mm. across. This apparently was a true tear of the retina.

Of course even with the microscopic appearance as described it is quite possible that the ophthalmoscopic appearance might be quite different from that described as "hole in the macula."

Kipp reports a case in 1908, which if it was a true hole at the macula is probably the only one examined ophthalmoscopically and then microscopically.

The patient, a boy, was shot in the eye, but the bullet passing through the orbit striking the sclerotic and finally tearing the optic nerve and passing into the brain from which the patient died twelve days later.

The third day after the injury Kipp was not able to make out the nerve from the surrounding tissue, but at the macula was seen a deep red circular area. He does not state that this appeared depressed.

The eye was enucleated and examined by Alt who found a depression at the macula which he called a hole at the macula.

Whether this case would have presented the appearance of the patient I bring before you at the expiration of a year or two is a question that can not be answered.

More recently (1911) Fuchs has examined two cases microscopically and found a depression at the macula with ab-

sence of the inner layers. Neither case was seen ophthalmoscopically and he states that no case has been seen first with the ophthalmoscope and then under the microscope, in which case he either does not consider Kipps case a hole at the macula or he is unacquainted with the American literature.

While Ogilvie believes it is an actual rupture of the retina from contre-coup, Coats, Fuchs and Parsons seem to hold to the theory of a cystic degeneration following oedema at the posterior pole.

That this oedema may result from contusions, from changes in nutrition due to arterio-sclerosis or from various toxins which may be circulating in the system.

As to the etiology in this case it is most difficult to decide. Although he gives the history of a blow over the right eye, his fundi certainly shows evidences of an old chorio-retinitis and to me it is difficult to imagine a blow over the right eye so severe as to cause such marked changes in the left eye.

Although I am unable to contribute anything new either to the etiology or pathology of this condition I believe it is sufficiently rare to place on record with its findings.

BIBLIOGRAPHY.

- Collins, T. O. S. xxi 1900.
 Coats, R. L. O. H. Rep. xvii 1 1907.
 De Schweinitz, T. Am. O. S. x 1904.
 Hoffman, K. M. F. A. xxiii 1885.
 Hartridge, T. O. S. ix 1889.
 Haab, Z. f. A. iii 1900.
 Harman, T. O. S. xxi 1901.
 Fuchs, Z. f. A. vi 1901.
 Fuchs, A. f. O. lxxix 1911.
 Knapp, A. f. A. i 1869.
 Kuhnt, Z. f. A. iii 1900.
 Loring, Text book 1891.
 Lawford, T. O. S. xiii 1889.
 Murakann, A. f. O. liii 1902.
 Noyes, T. Am. O. S. 1871.
 Ogilvie, T. O. S. xx 1900.
 Pagenstecher & Genth, Atlas, 1875.
 Pagenstecher, A. f. O. lv 1902.
 Parsons, Path. of the Eye 1908.
 Poynton, Parsons & Holmes, Brain. 1906.
 Reis, Z. f. A. xv 1906.
 Quint, Kusel, K. M. f. A. xlv 1906.
 Van Kippel, A. f. O. lxiv 1906.
 Wisselink, K. M. J. A. xliii 1905.
 Ward, Holden, N. Y. Acad. Med. 1906.
 Zentmeyer, Am. Oph. St. Louis xviii 472 1909.
 Kipp & Alt, Am. J. of Oph. xxv 1908.
 513 N. Charles St.

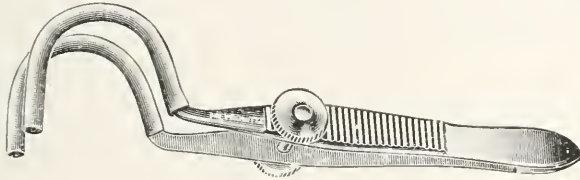
U SHAPED HEMOSTATIC LID CLAMP.

MARK D. STEVENSON, M. D.

AKRON, OHIO.

My first model was made several years ago, two years before Wilder described his very similar V-shaped lid clamp. For years I discontinued the use of this first instrument because

the sharp edges of the metal cut into the lids causing severe pain when it was sufficiently tightened to prevent hemorrhage. However, if proper sized rubber tubing such as is used on the eye wires of spectacles or a little larger is pulled over the metal arms, the tissues are not cut and very little, sometimes no pain is caused. In addition the pressure of the elastic rounding rubber surface serves better to constrict the blood vessels than the



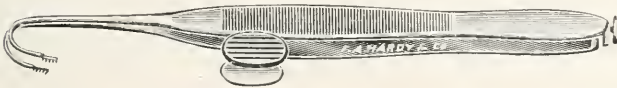
flat metal arms. The instrument should be larger than the Wilder V-shaped one and shaped like the letter U, somewhat similar to one of the arms of the old models of lid clamps. I have also had the set screws made so that the pressure of the blades can be regulated from either side permitting easy use of the instrument on either the upper or lower lids of either eye.

165 East Market Street.

A CAPSULE FORCEPS.

HARRY S. GRADLE, M. D., CHICAGO.

The admirable capsule forceps designed by W. A. Fisher serve well for the combined extraction of a cataractous lens,



but offer certain difficulties when used in simple extraction. The iris becomes entangled easily in the blades as they close and the tooth area is too great to permit a satisfactory grasp of the capsule when no iris coloboma exists. Consequently I reduced the tooth area by reducing the number of teeth from five to four and by setting them closer together. The first difficulty was solved by the introduction of an S shaped bend in the shank of the forceps just above the tooth area. Thus the forceps can easily slide over the iris and engage the anterior capsule while the iris proper is well below the shank, and in no danger of being entangled.

REPORTS OF SOCIETIES

COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF DECEMBER 21, 1912.

DR. CHARLES E. WALKER, PRESIDING.

Anterior Scleral Trephining for Glaucoma.

Dr. D. H. Coover presented a woman of forty years who on August 22, 1912, had come with the usual symptoms of acute glaucoma. Tension was then $+3$, or with the Shiötz tonometer 60 mm. of Hg. $V=5/60$. Six weeks earlier she had been hit in the eye with a piece of wood, and several glaucomatous attacks had occurred. Eserin produced an improvement in tension and vision. On August 26th she came back, having had several further attacks, and with vision reduced to light perception. T. was $+3$. Anterior scleral trephining was done. By August 30th the vision had improved to $6/30$. On September 2nd V was $6/15$ and tension minus. On September 10 V was $6/12$ minus. September 12 a boy was killed near her house causing considerable mental shock, and next day she came to the office with vision of $6/20$ m. T. (Shiötz) was 35 mm. In a few days her vision returned to $6/12$, and now with a $+1$, cy. ax. 90° she had $6/6$.

Dr. Coover also presented an elderly woman who had been before the Society in December, 1911, to show the effect of a trephining operation for relief of pain in absolute glaucoma. A marked cystoid cicatrix still persisted at the site of operation, and the eye was below normal tension and comfortable.

Dr. Melville Black reported the case of a man of 55 years whose right eye became inflamed and painful a few days after a blow. The general physician prescribed atropin. Three weeks later the cornea was steamy, the pupil dilated, and T. $+2$. After using eserine for five days without result, trephining was done, the conjunctiva being dissected back to the cornea, and the Von Hippel trephine used, as modified by Fox. A small hole was made in the protruding iris, and the conjunctival flap sutured in place. Tension became considerably below normal, but had increased and was now slightly minus. The eye looked normal, but had no vision and no fundus reflex was obtained.

Dr. Black presented a girl of 16 years, whose right eye had been trephined on account of enlargement of the globe with increase of tension. Needling of congenital cataract had

been done in each eye at the age of 5 years, but the right eye had never had much vision. A month ago she came with the right globe apparently increased in size, the sclera bluish, and the palpebral aperture increased. Tension with the Schiötz tonometer was then 60 mm. Hg. There was doubtful light perception in the eye, and the retina appeared to be detached above. At operation the trephine passed through the root of the iris into the vitreous, some of which had escaped. The tension of the eye, which had been much reduced for several weeks, was now almost normal again, but the eyeball was still congested and as prominent as ever.

DISCUSSION. Dr. Neepor considered the operation done with a sliding conjunctival flap to be easier than Elliott's method of dissecting back the conjunctiva at the corneal limbus, as the site for trephining could be seen more easily.

Dr. Coover said that there was danger of buttonholing the Elliott conjunctival flap.

Dr. Black suggested that the Elliott flap offered rather better support to the trephine opening than the sliding flap.

Dr. Coover had trephined in a case of staphyloma. The opening persisted for four weeks. The trephine had entered the vitreous, and whenever the tension increased vitreous escaped, but at the end of four weeks healing took place.

Dr. McKeown referred to a case upon which he had seen Dr. Fox operate, of glaucoma with conical cornea, in which the corneal cone had flattened down after trephining.

Circinate Retinitis.

Dr. D. H. Coover presented a woman of 62 years, who on Dec. 1st had come complaining of vision in the left eye becoming indistinct at times, and of difficulty in seeing to sew or read. V. was R. 5/60, not improved by lens, L. with correcting lens 6/10. The vessels of the right retina were contracted, the nerve head white, and there were atrophic changes in the macular retina. But no exudate was present in this eye. In the left eye, glistening whitish deposits surrounded the macula for a considerable area. In the macula itself the exudate was not quite so heavy. The exudate lay beneath the vessels, and there was a small hemorrhage on a vessel running down toward the macula. The general health was apparently good. B. P. 135 mm. Hg. Wassermann test was negative, and there was no indication of kidney disease. There were cortical striae in the lower nasal quadrant of each lens. The patient had been seen

a year earlier by Dr. Libby, who reported that at that time he had observed a whitish tessellated exudate lying along the inferior temporal artery and vein beyond the macular region, which showed recent inflammatory disturbance.

DISCUSSION. Dr. Jackson thought the condition in the left eye was retinitis circinata. In the right eye there was a condition of atrophy, and perhaps the exudate had disappeared largely in this eye, as in a case reported by de Schweinitz. Very probably both eyes represented different stages of the same condition.

Dr. Patterson referred to a patient who had a visual defect which he attributed to exposure to the snow. There were a few glistening areas in the macular region and nothing else. The color fields were variable. In such cases there is possibly an alteration in the vessel coats in the subretinal layers.

Dr. Libby, who thought the patient's general physical condition had deteriorated since he first saw her, did not believe that the condition in the first eye had been circinate retinitis, on account of the small and tessellated appearance of the exudate.

Punctate Cataract.

Dr. Melville Black presented a young man aged 19 years, each of whose lenses had been needled two years earlier on account of generally distributed white punctate opacities. At the posterior poles there had been granular disclike opacities a little larger than the undilated pupil. Vision of the right after needling and absorption had been 20/30 with +10 sph. Acute glaucoma after needling of the left lens had rendered linear extraction necessary, and vision of 20/20 had been obtained with +10. sph. and +.50 cy. ax. 30°. Of late vision had been failing, and there was a granular looking membrane which he proposed to needle, although corrected vision was still better than 20/40, in each eye.

Syphilitic Mydriasis.

Dr. G. F. Libby presented a man of 39 years who had contracted syphilis at the age of 19 years, and whose pupils had been permanently dilated, the left since the age of 26 years, and the right since the age of 27 years. When the left pupil first became affected, there was complete ptosis of the left upper lid. The ptosis got better, and only a slight trace of it persisted to the present time. Corrected vision was now R. 4/5 and L. 4/6. Four years back he was one of the first patients to get salvarsan from Klemperer in Berlin. The fundi were about normal, ex-

cept for slight atrophic change in the left disc. The pupils were fully dilated, and did not react at all to light, although eserine produced complete contraction. He required additional +2. spheres for near.

DISCUSSION. Dr. Black recalled a case which resembled that of Dr. Libby. The patient had required the addition of +1. spheres for reading.

Corneal Ulcer.

Dr. G. F. Libby presented a man whose left eye had been injured by a piece of coal a month ago, the result being a corneal ulcer involving a large central area. The patient had had infantile paralysis at the age of three years, and the left eye had been affected. There was now ptosis of the upper lid. There had been a great deal of lacrimation but apparently very little corneal discharge, and hypopion had appeared and disappeared several times. Electrocautery had been used, and the ulcer looked rather as though covered by epithelium, but two-thirds of it stained with fluorescein. The patient came from another oculist, and Dr. Libby proposed to use silver nitrate on the part which stained. There was a chronic dacryocystitis.

DISCUSSION. Dr. Black declared that he always found dacryocystitis in cases of extensive corneal ulcer, and advised syringing of the lacrimal passages.

Iridocyclitis.

Dr. D. H. Coover presented a girl of 12 years whose right lens was cataractous, and whose left eye had for some years been sensitive to light. The blindness of the right eye had been first noticed at 5 years, but there was no history of pain or inflammation in this eye, although the pupil was adherent and the iris ballooned. Tension was normal and light perception good. The iris remained fixed under atropin. In the left eye the pupil was fixed and adherent, and next to the pupillary border there was a little membranous exudate. There was no pain, and no ciliary injection, although there was some ciliary tenderness. Left vision was 6/60, improving to 6/15 with —1.25 sph., but with the lens before the eye the child complained of a good deal of pain. About fifteen months back the child had begun to drag the right leg, and the muscles of the leg commenced to atrophy. Otherwise the general physical condition was good. Wassermann was negative, and no specific history could be got from the parents. Under mercurial and tonic treatment the leg had improved but the eye was not helped.

DISCUSSION. Dr. Black referred to a case in which each eye was subject to recurrent iridocyclitis, but after iridectomy was done no further trouble was experienced. He would do iridectomy on this child's eyes, beginning with the right.

Dr. Jackson would try iridectomy and then attempt extraction of the lens, in the right eye.

Subconjunctival Cyst After Cataract Extraction.

Dr. Coover presented a man in whose right eye cataract extraction had been done seven years previously, and who now came on account of a bulging above the cornea, which had begun some time after the operation and had gradually increased in size. The vision of the eye was still very satisfactory with correcting lens, and the tension of the eyeball was normal. The anterior chamber had good depth. The swelling had a flattened sausage shape, with its long axis transverse, its contents were clear and slightly straw colored, and its periphery was marked by a delicate vascularity.

DISCUSSION. Dr. Jackson thought it might be a cyst which had arisen from inclusion of conjunctival epithelium. The swelling would not keep its form if it had not a cyst wall. He would remove in the same way as an ordinary conjunctival cyst, following with cauterization.

Dr. Aufmwasser suggested injecting fluorescein into the cyst to find out whether the aqueous became stained.

Penetrating Injury from Piece of Steel.

Dr. Chas. E. Walker presented a man whose left eye had been injured nine days previously while he was striking a hatchet with a hammer. Skiagraphy had shown a foreign body of the size of the point of a pencil, a little to the temporal side of the center of the vitreous. But repeated application of the giant magnet had produced no feeling at all in the eye, and no external signs. The lens was becoming more opaque, but the inflammation was less marked. Was it justifiable to go into the eye, and by what route?

DISCUSSION. Dr. Bane suggested testing with the sideroscope.

Drs. Black and Jackson favored trying the latter's scissors method, snipping in the vitreous with the scissors in contact with the hand magnet.

Dr. Coover favored using a magnetic spud.

William H. Crisp, Secretary.

**ROYAL SOCIETY OF MEDICINE.
SECTION OF OPHTHALMOLOGY.**

THE PHYSIOLOGY OF THE INTRAOCULAR PRESSURE.

At a meeting of this Section on Wednesday, December 4th, under the presidency of Sir Anderson Critchett, C. V. O., the subject for discussion was "The Physiology of the Intraocular Pressure."

Dr. Leonard Hill, F. R. S., in opening the debate, said the reason Dr. Flack and he appeared before the Society was because some researches which they had been carrying out on the relation of the general circulation to secretion led them to investigate the eye. The subject had already been brought before the Royal Society, but there were some new points which he would speak on. For the purpose of measuring the intraocular pressure, Mr. Thomson Henderson and he made some experiments because with the ordinary hypodermic needle they could not avoid leakage in the track of the needle. The result was, they devised a needle which did not permit of leakage. They found, by very carefully checked experiments, that the aqueous pressure varied within fairly wide limits, depending on the blood pressure: the higher the arterial pressure, the higher was the aqueous pressure. In one case, under chloroform, it was 16 mm. of mercury, and under ether narcosis, when the animal was in good condition, going up as high as 62 mm. By a compensation method they obtained readings which seemed to agree, so there seemed but little chance of error. It was very important that the pressure of the aqueous should be positive, because that kept the eyeball as a perfect optical instrument. Its distension, in their opinion, was maintained by secretory pressure. Though the pressure varied anywhere between 10 and 50 mm. according to the condition of the circulation, the eyeball retained its shape. The pressure in the capillaries and the pressure of the aqueous must always be the same. In a previous investigation they found that the pressure of the cerebro-spinal fluid and the pressure of blood in the cerebral veins was the same, and the two varied together. Various workers had made investigations and it was found by viewing the retinal vessels with the ophthalmoscope that the flow ceased in them when the pressure reached that of the general arterial blood. Dr. Hill and his colleague punctured the cornea of a cat, and then on gently pressing the abdomen the iris on the same side immediately burst into hem-

orrhage; all the capillaries allowed the blood to escape, and that came off every time. The explanation was that the normal aqueous pressure was exactly counterbalancing the capillary pressure. The aqueous had a definite chemical nature, and its osmotic pressure was said to be higher than that of the serum. Ehrlich demonstrated, by the injection of fluorescene, that some kind of circulation was proceeding in the aqueous. It seemed, from careful enquiry, that the cribriform ligament was opened up, and thus a passage was made for the fluid into the supra-choroidal space. That transference of fluid would allow accommodation to take place. The suspensory ligament was always taut, exerting elastic traction on the lens and causing it to assume its proper shape. The intraocular tension was said to be due to the elasticity of the lens, but it had no elasticity, for when removed it was a soft, pudding-like body. In the act of accommodation the muscle contracted, but continued to be of the same volume as the uncontracted muscle: on contraction it really moved inwards, as described by Thomson Henderson, and allowed the fluid to pass from in front of the lens either into the spaces of the ciliary body, or into the spaces of the cribriform ligament and into the supra-choroidal space.

Professor Starling, F. R. S., said most would agree with the facts which Dr. Leonard Hill had advanced, but he was not in close agreement with some of the interpretations which the opener placed upon them. It was important to have some idea of the factors determining the formation and absorption of the intraocular fluid, but more important to know what those factors were. It seemed to be generally agreed that the seat of production of the intraocular fluid was the ciliary processes, and the chief absorption was at the anterior angle of the eye, and some probably occurred at the root of the iris.

Covering the ciliary processes was a well-marked epithelium, containing columnar or cubical cells, which might well be endowed with the property of secretion, as they were as well formed as those of the salivary gland, or of the kidney tubules. What were the conditions which must be observed if the intraocular fluid was to be regarded as a filtration? The intraocular fluid was at considerable pressure so there must be resistance against its flow from the eyeball. But if the pressure there was in consequence of the pressure of the blood in the vessels, the pressure of the intraocular fluid must go up with the rise of pressure in the vessels. When the carotid or

subclavian artery was obstructed, cutting off the blood supply from the eyeball, the pressure came down: and it went up again in proportion to the amount of blood one allowed to enter those vessels. One could take 25 mm. as the average intraocular pressure. Stimulation of the sympathetic nerve caused a double effect: first, contraction of the unstriated muscle fibres of the orbit and a rise of pressure, and as the vessels of the ciliary process contracted so as to diminish the blood pressure in those vessels, there was a fall also in the intraocular pressure. There was a quick rise due to contraction of the nictitating membrane and the unstriated muscle fibres, and a rise of pressure. As the formation of intraocular fluid passed off, there was a fall of pressure, accompanied by constriction of the vessels of the eyeball. He contended that the blood pressure must be higher in the vessels all the way along than outside and than the intraocular pressure, and the quicker the rate of flow through the system of vessels concerned, the greater must that difference of pressure be. There was no reason for saying it was impossible for a difference of pressure to exist between the capillaries and the fluids outside; but there was every reason for assuming there must be a difference. One could not know how much fluid came out until one ascertained what was the rate of transudation. If the pressure remained constant, that rate was the rate of absorption. Professor Starling showed a number of slides to illustrate his point. It was impossible to measure in the capillaries, under normal conditions. By increasing the pressure of the intraocular fluid one brought up the pressure in the capillaries towards that in the arteries. At some future time it might conceivably be shown that the cells coming from the ciliary processes might act as regulators, but at present there was no evidence that they acted otherwise than as guiding and strengthening the filtering membrane. In regard to the relationship of the capillary to the venous pressure, he had never been able to understand Dr. Leonard Hill's position on that point. Into the mechanism of accommodation he did not propose now to enter, except to say he supposed it to be due to a shifting of fluid between the posterior chamber and the anterior chamber, which could easily take place, as there was no resistance between the fibres and the suspensory ligament.

Mr. Priestley Smith (Birmingham) said it was important to know what was the normal pressure in the human eye. It

certainly varied in different people and in the same person at different times; but what would be a fair average? A pressure of 60 mm. which had been mentioned, would surely mean that the person had glaucoma. Dr. Hill had said that the intraocular pressure was equal to the venous pressure, and to the pressure in the capillaries. He, Mr. Smith thought it was equal to the venous pressure at one point i. e., where the blood left the eye, but that at every other point the intraocular pressure was lower than the blood pressure. Dr. Hill had not shown that the pressure in the torcular herophili was equal to the pressure in the veins and the other parts of the skull; and, as Professor Starling said, there could not be equality of pressure or there would be no movement. But the difference in pressure was probably only very slight. He did not see how Dr. Hill could hold it as proved that the pressure in the capillaries of the ciliary body was the same as the pressure of the intraocular fluid; and every probability seemed to be against that view. It was generally acknowledged that the intraocular pressure was produced by the ciliary processes and he believed the ciliary body also played a part. There was no question that the vitreous fluid was renewed, but did it come from the posterior surface of the process, or from the *pars planis*? He expressed his objection to the use of some, even chemists, of the term "tension" instead of "pressure." There had been a controversy as to whether the tension of the eye depended on increased volume, or to increased pressure of the blood. Such a discussion was futile, because it depended on both.

(The discussion was postponed until the next Meeting of the Section.)

ST. LOUIS MEDICAL SOCIETY.

OPHTHALMIC SECTION.

NOVEMBER 6, 1912.

Removal of Steel from Eye. Dr. W. E. Shahan.

This case, which I wish to mention briefly, is of special interest because of the removal of a piece of steel from one eye through the original wound by means of a small hand magnet. He came to our office November 4th, with a history of being struck in the right eye by a small chip of steel which flew off from a hammer he was using, four days previously. There was a clean cut about 4 mm. long in the upper nasal quadrant of the cornea and a corresponding cut, somewhat fur-

ther navalward, in the anterior capsule of the lens. The lens was clouded over the whole of the nasal half. The sideroscope gave positive reactions to a magnetic foreign body. The pupil was only half dilated and the foreign body was not visible by means of the ophthalmoscope. The next day, under full mydriasis, the foreign body was plainly visible, even with oblique illumination, suspended by fine threads in the vitreous behind the lower nasal of the lens. It responded so promptly to magnetic influence that it was thought advisable to try to draw it around the lens through the zonule of Zinn into the anterior chamber, somewhat after the method of Haab. The giant magnet was used without success. The hand magnet, with one of the shorter heavier points, was then used, the point being held at times directly against the sclera and cornea, as near the foreign body as possible. After some manipulation the iris began to protrude at a point near where the foreign body was known to be. After some further manipulation, the point of the magnet being very near the original wound, but not touching it, there was a sudden gush of aqueous and the fragment of steel was found clinging to the point of the magnet. The eye has been perfectly quiet since.

DISCUSSION. Dr. Carl Berek: In this connection I would like to report a case, which I saw about two weeks ago, and then put a question before this society. The patient was a young man, about 20 years old. His right eye had been injured when he was a child and in consequence a traumatic cataract had developed. This cataract was needled by a confrere about five years ago with a good result as to vision. The eye was perfectly quiet, until a few days ago when he struck it with a piece of wood. Since then increasing inflammation.

When he came to me, I found in the anterior chamber, in front of the iris, a piece of capsule, about 2mm. in diameter. It was situated at the bottom of the chamber in the erect position of the patient but but easily movable. At one end of this piece of capsule and somewhat hidden by it, there was a small black spot or body. At first I took it for some iris pigment, but as it seemed rather large I placed the patient in front of the giant-magnet. The magnet pulled it forward at once. This, of course, established the diagnosis that it was a piece of steel or iron. After a corneal section downward the piece was easily removed with the hand-magnet. It was much more difficult, to remove the piece of capsule with the forceps, be-

cause it had become fixed in the lowest portion of the chamber. The recovery was uneventful.

We have here a case where a piece of steel had been tolerated by the eye for about fourteen years without any irritative or other symptoms. In all probability the piece had entered the lens and remained there until the physician needled the cataract. Afterwards it was probably in such a situation, held or surrounded by a portion of the capsule, that irritation was prevented. The recent injury dislodged it and then inflammatory symptoms set in.

What is the best method of procedure in cases where the foreign body entered through the sclera without injury to the lens? Haab of Zuerich recommends also in such instances to draw the piece with the giant-magnet around the periphery of the lens and then through the pupil into the anterior chamber and remove it from there after a corneal section. This seems to me a dangerous procedure. It is, of course, possible to avoid injury to the lens during this manœuvre, as it has been done. But it was not certain that such injury can be prevented; the slightest unruliness of the patient will produce it. I believe that it is preferable in such instances to remove the piece through the old sclera with hand-magnet; either through the wound, when the case is seen early enough, or by a new scleral incision. The danger of introducing instruments into the vitreous has in my opinion been overestimated. My personal experiences with the small magnet have been quite satisfactory.

Dr. Shahan, in closing: It has been best, according to the experience of our office, to make an incision through the sclera and draw out a magnetic foreign body with the point of a small magnet, as Dr. Berek has described. But this case seemed to be very favorable for the other method and it was therefore attempted with the above result.

Salvarsan in Syphilitic Ocular Disorders.

By Dr. John Green, Jr.: It is generally agreed among ophthalmologists that salvarsan has proved strikingly efficacious in many syphilitic ocular disorders, such as iritis, choroiditis, etc. Curious enough, interstitial keratitis occurring in subjects of hereditary syphilis, has seemed as a rule, not to be favorably influenced. The writer has had occasion to

investigate the literature bearing on this question and it appears that present ophthalmic opinion tends to a belief in the greater efficiency in this affection of mercury and the iodides. From this point of view the following case is of interest:

K. V., age 7, came to my service at the Children's Hospital, September 18, 1912. The mother stated that one month previously the right eye had become inflamed following a slight injury (finger thrust in eye). Two weeks later the left eye also became inflamed. He had been treated at a local eye clinic and the eyes had steadily grown worse. The boy presented a typical picture of bilateral interstitial keratitis. Dr. T. C. Hempelmann, to whom the patient was referred for general examination, elicited the following additional facts: The patient was an only child; the mother had had no miscarriages. He was a full term infant and breast-fed for nine months. No diarrhoea or constipation in infancy. Father died of tuberculosis. Patient has had pertussis, measles, but no scarlet fever or diphtheria. Has been somewhat nervous since eyes became sore. Physical examination showed the heart and lungs normal, the spleen palpable, the liver not enlarged. The boy exhibited well marked scaphoid scapulae, epitrochleae glands on both sides enlarged, the auxiliary, cervical and inguinal glands slightly enlarged. Wassermann strongly positive. The boy was first put on Syrup ferri iodati, twenty drops three times a day, with some improvement. On October 11th .3 gram neosalvarsan was injected into the buttocks. There was prompt and striking improvement in the eyes so that by the 30th when he returned for a second injection of a .25 gram the photophobia had entirely disappeared and the corneae had notably cleared.

DISCUSSION. Dr. Woodruff: This case I have to report is a case of a girl 11 or 12 years of age, giving and having given for a number of years all the marked symptoms of interstitial keratitis and hereditary lues. The child has been under treatment for eight years, two years with one physician, five years with another and a year ago last August she came to me. The child was given two injections of salvarsan. She had been troubled with a great deal of photophobia, so much that she was unable to look at a book or to use a pair of scissors, etc. Had repeated acute exacerbations of the trouble. Since about October a year ago she has been going to school

steadily, not missing a day and has made a steady progress and has grown physically very markedly. I had a Wassermann done on Monday of this week and have the report that the condition is still positive. I shall have an injection of neo-salvarsan given her at once. This case to me was exceedingly interesting because I knew the character of the treatment she had had before she had the salvarsan. Her general health has improved greatly and she has developed and grown, I should say, two inches in this last year.

Dr. Shahan: The case to which Dr. Woodruff refers came under our care some years ago. She was under our care for five years and had been given from 1/12 to 1/24 of a grain of bichloride of mercury three times a day continuously. She was given two doses of salvarsan and I watched her through that period at the Skin and Cancer Hospital. The reaction was pretty severe. She had a great deal of pain but almost immediate marked improvement in her symptoms was noted. When I last saw her the photophobia had about ceased.

Dr. Shoemaker: I should like to ask the members of the Section whether any of you have gotten good results from the use of dionin in the late stages of parenchymatous keratitis, when the inflammatory symptoms have subsided, but there still remains considerable opacity of the cornea?

Dr. Woodruff: In this case the cornea cleared very markedly, but I have been using in addition to general treatment a solution of dionin. Whether it was the salvarsan that did the work or the dionin is somewhat of a question.

Dr. Loeb: I wish to take exception to the last remark. I have had a case of distinct improvement in a clinical case of a bilateral interstitial keratitis under the use of dionin. When the patient came to me the pupil was contracted as far as I could make out. The opacity was so dense that hardly any of the pupil or the iris could be seen. The acute process had entirely disappeared, very little injection remaining. I put the patient on internal treatment Hydrarg. cum creta and locally atropin. After the pupil had been dilated sufficiently to get rid of any adhesions that were present, I put the patient on daily instillations of dionin. The cornea has cleared up, in one eye there is a slight opacity in the form of a minor scar and the other eye has a few scattering opacities. It was the dionin I feel convinced that cleared the eye. I have seen numerous cases improve under the use of this drug.

The Relationship of the Posterior Lens, Capsule and the Vitreous.

By Dr. Carl Barck: The general view maintained by advocates of "extraction within the capsule" that a perfectly clear pupillary area is obtained has not always proved true in the author's experience. In a number of instances a haziness or an opacity in the anterior layers of the vitreous was present. Similar observations have been reported by others. Investigations of the writings of such authorities as Morris, Piersol, Schwalbe, Salzman, Greef, Persons and others as to the presence or absence of a direct connection between the posterior capsule of the lens and the anterior layers of the vitreous revealed widely varying and sometimes directly contradictory views. If there is a direct and intimate connection, laceration of the anterior layers of the vitreous may be expected from removal of the lens in its capsule; if there is no connection or a loose one, clear pupillary areas may be expected. In order to decide this question practically, the author cut away the cornea and iris and carefully covered the fibres of the zonule of Zinn from the eyes of oxen and rabbits and found that when the eyes were so held that the lenses were down, the lenses did not fall freely from the patellar fossae of their own weight, but that considerable force was required to remove them. Also when the parts about the vitreous were cut away, and the vitreous held downward, the major part of the vitreous fell, but particles were always left adherent to the posterior surface of the lens. This, in the author's mind, at least in the case of these animals, proves that there is a distinct and fairly strong adhesion between the posterior lens capsule and the vitreous in the patellar fossa. Investigations of this same nature will be conducted later on human eyes.

DISCUSSION. Dr. Shahan: Considering the problem from an embryologic standpoint, it is also quite probable that there is some connection between the anterior portion of the vitreous and the posterior surface of the lens. It is well known that during one period of embryonic development, the hyaloid artery ramifies the vitreous and forms an intricate network on the posterior surface of the lens. And although this artery with its glial mantle, the central vitreous body of Retzius, disappears in late embryonic life, it is difficult to believe that it disappears so completely as to leave the lens and vitreous completely separated by perfectly clean surfaces. It is much more probable that there are fibrillar remains of these early

structures extending from the posterior lens capsule into the vitreous so that when the lens is removed in its capsule these fibres are uprooted with consequent laceration, and occasional clouding of the anterior surface of the vitreous. It is not : all unusual to see remains of the hyaloid artery on the posterior surface of adult lenses during routine ophthalmoscopic examinations.

Dr. J. Gross: Dr. Ewing has been devising forceps for cutting and removing the anterior lens capsule in the extraction of cataract. I think he has published some of these results in the American Journal of Ophthalmology. I have seen Dr. Ewing operate with these forceps in two or three cases and the results were very satisfactory. I suppose if you could pull out the entire lens capsule with any kind of a forceps without cutting it up it would be better still but I have my doubts as to the possibility of that.

Dr. Shahan: With regards to capsule forceps, I had the opportunity of seeing them frequently used in various parts of Europe and England. They appear to be used as a routine on the continent, but in London apparently not so freely. I was struck by the fact, which may have been accidental, of seeing more needle operations in a few days in London than I saw in several months on the continent.

Dr. Barek, in closing: If we would find a reliable method to remove the entire anterior capsule and lens this method would be preferable to the extraction of the lens in the capsule, because less dangerous and because the vitreous is left intact.

As to the embryological question, brought up by Dr. Shahan, we know, of course, that the vitreous develops from the mesoderm and the lens from the ectoderm. But this has, in my opinion, little bearing on the practical side of the question. For in spite of development from different embryological layers, the two membranes may become afterwards so intimately united, as to become practically one. This happens in other parts of the human body.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF DECEMBER 2, 1912. DR. S. LEWIS ZEIGLER,
CHAIRMAN.

Demoid at the Corneoscleral Margin.

Dr. Burton Chance reported two cases of Dermoids at the corneoscleral margin which had been under Dr. Schwenk's and his own care in the present year. The tumors exhibited

the well-known characteristics of their class and in Dr. Chance's case the mass was believed to have increased in size in the past few months. The tissues in each case contained hair within their well-formed follicles, and in Dr. Chance's there were sweat glands and marked proliferations of pigment, while the squamous epithelium covering showed evidences of horny condensation.

Recurrent Sarcoma of the Orbit.

Dr. Zentmayer exhibited a woman of 74 years of age who had been operated upon for sarcoma of the orbit by the late Dr. Norris in 1897. The growth originated in the lacrymal gland and was found to be incapsulated. There was a recurrence in 1905 at the time she first came under Dr. Zentmayer's care. There was at that time a large hemispherical mass occupying the outer, upper region of the orbit. The growth was enucleated and found to be only in part encapsulated. After the wound had healed she was given ten X-ray treatments. One year later the tumor again began to grow, and in 1910 extended from the zygoma to the hairy scalp and almost the whole length of the supraorbital margin. The mass was removed, the globe enucleated and the orbit eviscerated. The growth was found to invade the frontal sinus on the other side. The clinical diagnosis was cylindroma. The pathological report by Dr. Goldberg was that the tumor was a small sarcoma nonpigmented but very vascular. The eyeball was unaffected, as was also the deeper orbital tissues. The superficial orbital tissues, the skin of the face and eyelids were extensively infiltrated with the growth cells.

The patient returned October 7, 1912, stating that there was little evidence of recurrence until the first of the year, but since then it has been very rapid. The mass was of about the same dimension as in 1910. There was also a growth, probably epithelioma, below the inferior orbital margin. At the operation the sarcoma was found to extend into the calvarium. The epithelioma was removed and the wound covered by a Diefenbach sliding flap. The other wound was allowed to granulate. Marked physical and mental impairment have followed the operation.

Dr. Ziegler spoke of a case of recurrent sarcoma which had involved the ethmoid region, in which he had used Ewing's solution followed later by applications of formalin 1%, which entirely cleared up the sarcomatous mass with no recurrence for a year when she was lost sight of.

Optic Atrophy Following a Blow Over the Orbit.

Dr. Charles R. Reed exhibited a patient with monocular optic atrophy. On October 11, 1912, he received a severe blow on the upper orbital margin of the left eye from the elbow of another man. Immediately following the injury he suffered severe ocular pain and some nausea for some hours. On the following morning he had but little pain, but was entirely blind in the injured eye. The examination on October 21st, at the Wills Hospital showed the left eye to be blind and the pupil inactive to light, but aside from this and a slight subconjunctival ecchymosis the examination was negative, the fundus being healthy in all respects. On November 29, the optic disk showed decided atrophy with cupping. Dr. Reed regarded the case as one of probable rupture of the optic nerve by fracture into the optic canal.

Dr. Posey referred to a case of complete monocular blindness following an injury to the head, and attended by full restoration of vision, which he had presented before the College of Physicians of Philadelphia in 1899. The subject of the blindness had received a hard blow over the left eye by the occiput of his child's head. Vision was unaffected until 30 hours later, when a veil seemed to drop before his eye and at the end of the 5th day total blindness supervened. There were no external signs though the nerve head was somewhat pale. Leeches were applied to the left temple, salines were freely administered, and a dram of mercurial ointment applied twice daily. At the expiration of three days, vision began to clear, and at the end of about twenty days was completely restored.

Dr. Posey thought that the comparative lateness after the injury with which the visual disturbance manifested itself, indicated that the lesion must have been external to the nerve, for if the haemorrhage which caused the blindness resulted from a rupture of one or more of the vessels of the sheath of the nerve, it is probable that the nerve would have been affected at once by the outpouring of the blood, and vision would have been lowered almost immediately. Furthermore it does not seem likely that the lesion was due to a haemorrhage into the subdural space around the nerve, as in the post-mortem findings of Priestly Smith, referred to by Nettleship, as well as in a similar case cited by Silcox, in which there were grave intra-cranial lesions which had originated the

haemorrhages into the lymph-spaces about the nerves, for in the case which he reported there were no intracranial complications.

When these factors are taken into consideration, it seemed to him that it is probable that the lesion which induces transient blindness after head injuries may be imputed to a fracture involving one of the bones of the orbit, and that it operates quite similarly to that which induces permanent blindness, the difference being only in the extent and the position of the fracture.

As there is usually no means of telling the cases capable of improvement in vision from those in which blindness will be permanent, it behooves us in all instances of blindness after injury of the head, to use every method in our power to aid in the absorption of any haemorrhage or extravasation which may be compressing the nerve. Of course in those cases in which there is an actual laceration or complete compression of the nerve, nothing will be gained; but it is probable that, in many instances where involvement is less serious, substantial results may be obtained by measures similar to those employed in the case which has just been reported.

Dr. Ziegler said that many years ago he had seen in the services of the late Drs. Harlan and Goodman, many cases of monocular optic atrophy, due to sabre wounds of the temple, which produced fractures of the orbit.

Ptoxis.

Dr. S. Lewis Ziegler exhibited a case of monocular ptoxis in which he had performed the Dransart operation. This consists in attaching the upper margin of the tarsal cartilage to the occipitofrontalis muscle by means of sutures. The result of the operation in his case was very satisfactory.

Embolism of the Central Artery of the Retina.

Dr. W. W. Watson reported a case which came to Dr. Posey's clinic at the Howard Hospital complaining of the sensation of a foreign body in his right eye, which had come on suddenly the previous morning. That evening the patient noticed a marked diminution in vision in the affected eye together with an increase of pain when exposed to artificial light. Vision at that time was reduced to fingers at four inches, although this was slightly improved by turning the head to the right. At the time of his visit to the dispensary the following afternoon the patient could distinguish only light and shade.

Externally the eye was negative, save for a dilated pupil caused by the installation of a mydriatic by his family physician. The ophthalmoscope revealed a distinct pallor of the disk and of the retina for about one d.d. from the disk. The macular region was pale, the macula itself showing as a cherry-red spot. The arteries were collapsed and the veins full. No peripheral changes. Two days later the disk margins became very blurred and the pallor of the retina increased in extent. At this time the eye was totally blind.

The family history was negative, as was the personal history with the exception of an attack of gonorrhoea twelve years previously. Cardiac examination showed a myocarditis and a systolic blood-pressure of 160 m.m. Hg.

In view of the sudden onset with no prodromal obscurations of vision Dr. Watson classified the case as an embolus and not a thrombus of the central artery of the retina. He remarked that the pathology of this condition is obscure and the cause is questioned. It is contended by some that all cases are thrombotic and not embolic in origin, although post-mortem evidence of embolism has been furnished by Graefe and others, notably Rubert, who claims his case of embolism proved post mortem is alone or with one exception the only one known.

Dr. Zentmayer said that some years ago in reporting a case of embolism of a cilio-retinal vessel in a boy who had lost one eye from gonorrhoeal ophthalmia, and who had later suffered from gonorrhoeal synovitis and endocarditis, he had held that ophthalmoscopically the opacity in the retina in obstruction to the central artery, did not seem to be in the nature of an edema, as it is so accurately limited to the area supplied by the obstructed vessel. This is also to be noted where there is a branch embolus. Where there is obstruction to the central artery in the presence of a cilio-retinal vessel the part supplied by the vessel, although right in the midst of the opacity, retains its normal transparency. In looking the question up he found that Frost had concluded that the opacity was due to a molecular death of the retina. Some years later Hancock took the same view believing it to be an original thought. In Collins and Mayo's book the possibility of this view being correct is entertained.

Dr. Posey spoke of the differential diagnosis between embolism and of the central artery of the retina and thrombus of the same vessel, and drew attention to the repeated attacks

of blindness which usually occurred in the later affection. While no doubt cases of embolism do occur, thrombosis is far more frequent. He cited a number of cases which has been preceded by transient attacks of blindness in the affected eye which he had reported before the College of Physicians of Philadelphia in 1902, in some of which the loss of sight had been due to spasm of the arteria walls. In this connection Dr. Posey recalled a case of Leber's where there were all the ophthalmoscopic signs of embolus in which the microscope failed later to reveal any evidence of either embolism or thrombosis, Leber attributing the blindness and the pathologic findings to long-continued spasm pure and simple, without microscopic change in the vessel walls. Dr. Posey said that the prognosis in all cases of transient blindness should be most guarded. It would appear impossible to predict what the outcome of any one of them might be, whether the blindness be due to spasm and be always transient, whether it be due to forming embolism which finally destroys the sight by shutting off the blood supply entirely, or whether the same fatal result is attained as in the case reported by Leber, by long-continued spasm.

In view of the uncertainty regarding the nature and outcome of these attacks, it is of the greatest importance to prevent a recurrence of them, by combating any tendency towards endarteritis, as it is probable that the spasm in the walls of the vessels is induced by such a process. It has long been a recognized fact that iridectomy, by causing a dilatation of the blood vessels, reduced intraocular pressure. This operation has accordingly been performed in a number of cases of transient monocular blindness with a view to preventing subsequent permanent blindness. Wagenmann would have it performed in every case of this nature. In view of the uncertainty regarding the cause and the course of these cases, it does not seem proper to Dr. Posey to subject an eye, which may remain permanently healthy, to an operation which in a certain proportion of instances, no matter how skillfully performed, renders the eye useless for visual purposes. He would, however, insist upon a treatment and a regimen to combat arterial sclerosis. At the time of the attack, the value of nitrate of amyl has been proven, and gentle but active massage of the eye should always be essayed.

J. MILTON GRISCOM, SECRETARY.

TRANSACTIONS OF THE PHILADELPHIA
POLYCLINIC OPHTHALMIC SOCIETY.

DECEMBER 12, 1912.

DR. WENDELL REBER IN THE CHAIR.

Dr. Luther C. Peter. "Altitudinal Hemianopsia, Unilateral and Bilateral."

Dr. Peter reported two cases which were in some ways unique:

One of unilateral altitudinal hemianopsia, due to embolism of the inferior artery of the retina; in a 30 year old married woman with characteristic history of embolism. Pupils equal, react to light, accommodation, and consensually; eyes steady under cover. Wernicke's phenomenon is incomplete. All external ocular muscle movements good.

Fields in right eye somewhat contracted, especially for form. In left eye there is some slight contraction for form and color in the inferior half, with total blindness above, running horizontally above the center. Heart and renal conditions are normal. Patient's general build is frail, and she reports that at time of visual failure her health was not up to par.

The restoration of the upper half of the retina was due in all probability to the anatomic arrangement of the vessels and the location of the embolus, thus allowing the blood to pass gradually into the superior vessels, while the inferior branches remained closed. The macular region was not included in the blind area.

The other case was one of binocular superior hemianopsia occurring in a 41 year old married woman.

As to the location of the lesion the facts in the case pointed to the inferior surface of the chiasm. Bilateral superior hemianopsia followed promptly by atrophy of the inferior half of the optic nerves must necessarily be in or about the optic chiasm. The sudden appearance, also atrophy of the optic nerve following the development of the hemianopsia, points to a lesion well forward, either in the chiasm or anterior to the chiasm. Anesthesia of the left face, arm and hand at the time of onset, suggests a disturbance well back in the tracts near the peduncles, or primary optic centers. As the patient was profoundly neurasthenic it may have been but another phase of her functional disturbance when she discovered the blindness in her upper fields. If organic in origin, it is not difficult to conceive a gummatous basal meningitis involving the chiasm and ex-

tending back towards the peduncles or the primary optic centers.

A comparative study of the fundus changes in these cases is interesting in contrast. The changes in the disc and retina of the unilateral case are entirely nutritional in origin. The dividing line is well marked in the disc, and even in the size of the vessels, the inferior arteries being little more than one-half the size of the superior vessels. This is in marked contrast to the second case, which furnishes a picture of post-neuritic atrophy. The pallor in one-half the nerve head is common to both cases, but in the latter, the disc is not clear, the edges being veiled and the porous opticus invisible, while the arteries and veins are fairly uniform throughout.

DISCUSSION. Dr. Posey recalled that loss in the field of a hemianopic type sometimes results from vascular changes in the nerve itself or from pressure of atheromatous vessels upon the nerve. He said that of course no pure chiasmal lesion could occasion a complete loss of vision in the whole of the upper fields of both eyes, as the nasal halves would necessarily be uninvolved. To explain a loss such as had occurred in Dr. Peter's case, it was necessary to look for a lesion either anterior or posterior to the chiasm. He referred at some length to the loss in the upper fields of vision following chiasmal disease and to the value of x-ray study in determining the nature of the lesion. Even vague shadows obtained from radiographs should be regarded as positive findings. Operation by the method recently devised by Frazier gave more promise of relief than earlier procedures.

Dr. Zentmayer said loss of one-half of the field of vision due either to retinal changes or to optic atrophy is not unusual. "I recall a case of obstruction to the central artery of the retina in which recovery of the superior half of the field occurred rather late. Similar defects are found to be quite common in amblyopia resulting from general hemorrhages. I have elsewhere reported an interesting case of so-called inferior hemianopsia. Following long continued attacks of temporary obscuration the inferior field finally became permanently blind. The upper half of the optic nerve is atrophic. The superior half of the opposite eye is now having repeated attacks of obscuration. The cause here is probably arteriosclerosis of the ophthalmic artery producing pressure upon the nerve at the point of entrance into the orbit.

"It would be better not to use the term hemianopsia in such cases especially where there are similar defects in the two eyes, as this term should be limited to symmetrical half field blindness due to a central lesion."

Dr. Leighton F. Appleman. "Reflex Symptoms Resulting From Degree of Muscle Imbalance."

Dr. Appleman's communication had to do with hyperphoria only.

Patients often show only a shade of vertical deviation with the Maddox rod for distance, but if the test includes an estimation of the muscle status at the reading distance, an error of 1 to 2 or more degrees may become manifest. If then a prism of $\frac{1}{4}$ or $\frac{1}{2}$ of the strength found be placed before the eye, together with the Maddox rod, and the patient be directed to gaze on the light, he will often show a perfect balance. In other words he is suffering from latent hyperphoria, which is just as potent in causing reflex symptoms as is latent hyperopia and astigmatism. As in hyperopia and astigmatism, it is often the small error of $\frac{1}{2}$ or $\frac{3}{4}$ of a degree which prevents an otherwise perfect result from the use of glasses.

Of a series of 181 cases prescribed for during the last 15 months, 64 were given correction for hyperphoria, and of these, only 13 were given a prism of over 1 degree, leaving a balance of 51 who showed hyperphoria of less than 1 degree. All these patients expressed a distinct sense of relief, as though a strain were taken off the eyes when the prism was put on over their correction, and subsequent reports have shown continued relief from their symptoms.

The conclusions to which I have come, as a result of the study of these cases is: (1) That many persons suffer for years with headaches and reflex symptoms for which they have been drugged, and their glasses changed many times, without attention to the muscle balance, and therefore without the relief which should attend their use. (2) That patients suffer from latent hyperphoria just as much as from latent hyperopia and astigmatism. (3) That the recognition and correction of low degrees of vertical imbalance, in addition to their refractive error, is of the utmost importance to the comfort of the patient.

DISCUSSION. Dr. Zentmayer: Whether or not to order prisms in low vertical errors before finding out whether the correction of the refractive error alone will not do away with the symptoms of which the patient complains must be decided by

one's own experience. Dr. Appleman speaks of the change in the refraction in his cases as having been insufficient to produce the symptoms of which the patient complained and that therefore the small vertical muscular anomaly was taken into consideration. I do not believe it possible to determine whether or not the change in the refraction was the cause without first having made the necessary change in the glass. We all know it is often the smallest errors that produce the most pronounced symptoms. My own practice has been and is to ignore hyperphorias under $2\frac{1}{2}$ degrees in first ordering glasses. I have rarely ever had to incorporate a prism because the correction of the refraction error failed to relieve the symptoms. I believe that I have not ordered prisms for errors of this degree in ten cases in 25 years of practice. I attribute this to doing the refraction work under complete cycloplegia induced by atropin and ordering the glasses while the effects of the drug was still active. Of course higher degrees may require correction and tenotomy is a very suitable means of treating such cases. I think that in rare instances the hyperopia increases after partial correction with prisms. I believe these cases to be due to congenital palsies with contractures which perhaps relax after prisms have been worn for a time. I have removed far more prisms than I have ever put on.

Dr. Posey said that several years ago he had made a clinical study of 287 cases of hyperphoria and had found that when properly searched for, hyperphoria of 1 degree or more will be found to exist in about 13 per cent of all cases of refraction. Latent hyperphoria is of frequent occurrence and develops quite independently of age. He had found that the correction of errors of refraction is not sufficient in the majority of cases to bring about a disappearance of any existing hyperphoria, as he had observed that hyperphoria makes itself manifest the longer the glasses are worn, the increase in the hyperphoria occurring whether the vertical prisms have been incorporated into the formula or not. While he was somewhat skeptical regarding some of the reflexes which eyestrain was supposed to originate, it had been his experience that the hyperphoria frequently gives rise to headache, that of the supra-orbital variety predominating. In a small proportion of cases, it will be unilateral, usually on the same side as the eye with the poorest vision. Typical attacks of migraine may be expected in about 5% of all cases of hyperphoria. A symptom

of frequent occurrence and of great value in directing attention to the hyperphoria consists in an associated reflex in the supply of the facial nerve. This may manifest itself either in a unilateral twitching of the lids, as in nictitation, or more rarely by a pronounced blepharospasm.

He decried the use of prisms in all cases, prescribing them only when they seemed particularly indicated, and then only partially correcting the error. He would not, however, like to practice ophthalmology without the use of prisms.

Dr. Peter's experience was that the vertical prism was of great use in properly selected cases when the refractive correction had proved insufficient and there was no general disorder to account for the residual symptoms.

Dr. Sweet: "I don't use a great many prisms and I never use prisms base in or base out, but I do use prisms base up and base down. I never give a prism at the first test; I always watch them until they wear their glasses for a while. If I find they have 1 degree of hyperphoria I always give them a 1 degree prism."

Dr. Reber: "At a first examination I think it is rather foolhardy to rush in with vertical prisms. Other things being equal I think it is the part of wisdom to give the patient a full chance with the refractive correction; but where there is a hyperphoria of $1\frac{1}{2}$ degrees to 2 degrees that is producing symptoms when good refraction has been unavailing, I would give them half of their infinity correction. I think it is a mistake to give them the full correction at once; if there is a total of 2 degrees I should not give them more than 1 and there is no question but that the average person who puts on prisms will later show a greater hyperphoria than when prisms were first put on. My own case is a beautiful illustration. I had no trouble in showing 1, $1\frac{1}{2}$, then 2 and finally $2\frac{1}{2}$ degrees of hyperphoria. I have reached, I think, my full degree of hyperphoria, and I have now worn the same vertical prism ($2\frac{1}{2}^\circ$) for 9 years. I think there is nothing truer than the existence of latent hyperphoria. I myself have seen many cases that show at first but $\frac{1}{2}$ degree, and have shown as much as $1\frac{1}{2}$ to $2\frac{1}{2}$ degrees in 10 minutes by uncovering tests to break up fusion. If that is not latent hyperphoria, what is it? As to unequal hyperphoria in the two eyes, certain patients will show higher hyperphoria in one eye than the other, which I believe indicates some slight degree of paresis of the superior rectus in

the hypophoric eye. There is no end to the reflexes that may be set up by hyperphoria, the commonest ones being probably the gastric ones.

D. FOREST HARBRIDGE, M. D.,
Secretary.

CORRESPONDENCE.

THE DEGREE IN OPHTHALMOLOGY.

Editor Ophthalmic Record:—The argument advanced by the sponsors for the new departure in the Medical Department of the University of Colorado, based upon that in the medical schools in Oxford and Liverpool, while cleverly devised and containing much merit, is yet open to criticism in that it veils too thinly an appeal to the desire for the material benefits which should accrue from a possibly enlarge clientele: and offers no safeguards from the real dangers which beset the course of specialism—in other branches as well as ophthalmology.

It can hardly be denied that the new title would be unsought if it was not to serve more or less (and perhaps more) as a counter attraction to the title "Optometrist." Nor is it easier to deny that the competition of the cult just named is the underlying cause of the new departure: for otherwise it would have been ignored in the argument.

I would not be understood as opposed to a more strenuous course of preparation for specializing, for I am heartily in favor of it. But I would prefer to see it advocated on its merits, and without regard for what the other fellows are doing.

That Ophthalmology should ever parallel Dentistry, as intimated in Dr. W. H. Crisp's article (pp. 3-11 Record Jan'y. in 1913) is a consummation devoutly to be opposed. Even though it may seem a waste of time for the man who will specialize in ophthalmology to spend hours and days upon the pathology and therapy of "piles" (vide Crisp) it is beyond question that he should know and be able to recognize their bearings upon ocular disturbances.

This illustration, while not the best of the many that might be cited, is enough to show the need of a broad foundation: to which Ophthalmology has long been committed and Dentistry not. And as the tendency of specialism is inevitably to narrowness of view, a narrow foundation would make a bad matter worse.

But there is another aspect of the situation of graver

import. The argument lays stress upon the "reproach" which has come to specialism through the failures of the "incompetent," and is arranged to show that insufficient special training is the root of this evil. It may be one of the roots; but another, and may be larger, is the absence of that general training essential to show the average man how little he knows—in other words, his limitations. I even venture the assertion that an investigation of the incompetents would show 90% of defective knowledge of limitations and 10% of fear that reputation (or a desirable fee) would be lost.

The course in Dentistry has been greatly extended in the last decade. But we see its exponents attempting unaided to treat antrum disease, and this may be only the entering wedge for other things. Ophthalmologists, Otologists, Surgeons, Gynecologists, etc., may be likewise guilty of exceeding their limitations; and, if so, who has the right to cast the first stone? The temptation to branch out is the mainspring of progress. But how to stimulate, how to check, are questions to be discussed so long as the personal equation remains a factor. More education should be a help; but first of all it should be taught that the practice of medicine in any and all of its lines is a draft on personal courage—courage to do, against great odds, the thing one knows to be right, courage to say, at any personal sacrifice, that other advice should be taken when the course is not clear. Some of us have witnessed the long and hard fight to get laws to regulate the practice of medicine, and we know only too well that the plea for the "public good" has never been generally accepted. Under these circumstances it may be wise for us to let the public find out for itself that its welfare has been enhanced by our better service, and relegate to oblivion any scheme that would call attention to what we purposed doing for it.

H. B. YOUNG.

Burlington, Iowa, January 30, 1913.

NEWS ITEMS

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Building, State and Madison Streets, Chicago, Ill.

Dr. Frank C. Todd is chairman of the Committee of Arrangements for the Minneapolis meeting of the American Medical Association.

Dr. C. C. Stuart has been chosen chairman and Dr. Leo Wolfenstein secretary of the Section of Ophthalmology and Oto-Laryngology of the Cleveland Academy of Medicine for the ensuing year.

The following have been elected officers of the Chicago Ophthalmological Society: President, Willis O. Nance; Vice-President, Oliver Tydings; Secretary-Treasurer, Wesley H. Peek; Councilor, Oscar Dodd.

Dr. Ralph Fox of Bloomington, Illinois, who has been taking a post-graduate course at the Harvard Medical School, has gone to Vienna for further work. Dr. Fox will again take up his practice in Bloomington at the end of his six months abroad.

At the annual meeting of the State Board of Health of Illinois the President recommended an amendment to Medical Practice Act, permitting midwives to use suitable prophylactics to prevent ophthalmia neonatorum, this to be supplied to all midwives by the board and to physicians on request.

Dr. A. Mac Callan, director of Ophthalmic Hospitals, Department of Public Health, Cairo, Egypt, is always glad to meet foreign colleagues in ophthalmology, or to arrange visits to one or more of the Egyptian Eye Hospitals. The director, almost constantly traveling, requests such colleagues to be kind enough to write him before they arrive in Egypt, giving their Cairo address when possible.

Eye and Ear Specialists Organize.—On January 7, the

Louisville Eye, Ear, Nose and Throat Society was organized by eye and ear specialists of Louisville, Ky., and New Albany and Jeffersonville, Ind., with an initial membership of fifteen. Dr. Adolph Pfingst, Louisville, was elected president; Dr. W. J. Leach, New Albany, vice-president, and Dr. J. R. Peabody, Louisville, secretary-treasurer. The meetings are to take place the second Thursday of each month.

Dr. Frank Allport of Chicago addressed the Minnesota Academy of Ophthalmology and Oto-Laryngology at its monthly meeting January 10 in Minneapolis. The address was upon the subject of School Hygiene, or the Health and Welfare of the School Child, and was read and discussed after a banquet held at the Hotel Radisson. About seventy-five Minnesota specialists were present.

In the morning Dr. Allport addressed the senior class at the State University upon Minor Ocular Accidents.

Dr. Williams Evans Bruner of Cleveland, Ohio, has recently been elected Clinical Professor in charge of the Department of Ophthalmology in the Medical Department of Western Reserve University and has also been appointed Visiting Ophthalmologist to Lakeside Hospital of Cleveland, Ohio.

Collectors of ophthalmic literature will be pleased to know that Mr. Henry Kimpton, 263, High Holborn, London, W. C., England, has acquired a copy of the rare Dalrymple (John) Pathology of the Human Eye, 1852, quarto, 36 full-page plates, colored, half bound, in good condition, which he will be pleased to supply at the price of £10: 0: 0.

OXFORD OPHTHALMOLOGICAL CONGRESS.

Preliminary Notice.

<i>Master,</i>	<i>Hon. Secretary,</i>
ROBERT W. DOYNE.	SYDNEY STEPHENSON,
<i>Hon. Treasurer,</i>	33 Welbeck Street, London, W.
SIR ANDERSON CRITCHETT, Bart.	England.

The Oxford Ophthalmological Congress will assemble at Keble College, Oxford, on Wednesday, July 16th next, and the meeting will be held on Thursday, the 17th, and Friday, the 18th of July.

A discussion, to be opened by the Master of the Congress.

will take place upon "The Present Position of Ophthalmology." Speakers are invited to send in their names to the secretary.

Members are reminded that cases, specimens, etc., are needed, and will be welcomed. They are indeed essential to the success of the meeting. If there be any demonstration that you are willing to give, any operation that you care to show, or any exhibition whatever that you are desirous of making, please notify the secretary as soon as possible.

XVIIITH INTERNATIONAL CONGRESS OF MEDICINE.

LONDON, AUGUST 6TH TO 12TH, 1913..

We are asked by the secretaries of the Section of Ophthalmology of the XVIIth International Congress of Medicine (London, August 6th to 12th, 1913.) to recall to our readers the following rules of Congress:

The titles of all independent papers should be announced to the central office of the Congress by the 30th of April, 1913. Any papers offered after the 30th of April, 1913, will only be placed upon the agenda after the discussion of those which have been announced before this date and have been chosen by the Council of the Section. No paper will be accepted unless the title has been received by the secretaries of the Section before the 1st of July, 1913. The text of every communication must be typewritten. Independent papers may be written in English, French, German or Italian.

AN INDEX TO THE OPHTHALMIC RECORD.

Owing to a desire to make the INDEX of the twenty-one years of the OPHTHALMIC RECORD as complete as possible it has been decided to delay its publication for one month. The Index will be sent with the March number of the RECORD.

BOOK NOTICE.

The first edition of *Electricity in Diseases of the Eye, Ear, Nose and Throat* with illustrations. By W. Franklin Coleman, M. D., Ex-President of and Professor of Ophthalmology in the Post-Graduate Medical School of Chicago; Ex-President of The Ophthalmological Society of Chicago; Professor of Ophthalmology in The Illinois School of Electro-Therapeutics, Chicago, etc. Published by The Courier-Herald Press, Lincoln, Illinois. Is now in the hands of the booksellers. Price \$5.00.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.) G. W. Mahoney (Poli.)	*Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.) Brown Tusey, N. W. U. Every day, 10-12 A.M.	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.	.....	Willis O. Nance (C.C.S.)	.....	Willis O. Nance (C.C.S.)	.....	Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Levensohn (Inf.) Willis O. Nance (Inf.) W. C. Orcutt (Inf.) D. C. Payne (Inf. Med.) D. A. Remmen (Inf.) N. E. Selby (Inf.) F. A. Phillips (Inf.) Wm. H. Williams (Inf.) H. W. Wilder (Inf.) H. W. Woodruff (Rush) Francis Lane (Rush) N. A. Young (Inf.) J. R. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Williams (Inf.) H. W. Wilder (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. R. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	E. V. L. Brown (Inf.) W. Allen Barr (Inf.) M. H. Levensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Selby (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Williams (Inf.) Francis Lane (Rush) M. H. Levensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Levensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) W. W. Woodruff (Inf.) N. A. Young (Inf.) J. R. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (E. E. N. T.) W. A. Fisher (E. E. N. T.) W. E. Gamble (Inf.) J. B. Loring (Inf.) J. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Williams (Inf.) M. H. Levensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*I. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	.....	W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusey (County)	.....

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School,
819 W. Harrison Street.
E. E. N. T.: Chicago Eye, Ear, Nose
and Throat College, Washington
Franklin Streets. Clinics all day.

County: Cook County Hospital, W.
Harrison and Honor Streets.
Ills. Med.: Illinois Medical College,
182 Washington Blvd.
Inf.: Illinois Charitable Eye and Ear
Infirmary, Peoria and Adams Streets.

Poli.: Chicago Polyclinic and Hospi-
tal, 174 E. Chicago Avenue.
P.-G.: Post-Graduate Medical School
of Chicago, 2400 Dearborn Street.
N. W. U.: Northwestern University,
2431 Dearborn Street.

Rush: Rush Medical College, W.
Harrison and Wood Streets.
St. Luke's: St. Luke's Hospital, 1416
Indiana Avenue.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXII

CHICAGO, MARCH, 1913

No. 3, New Series

ORIGINAL ARTICLES

INFECTIOUS SUPPURATIVE KERATITIS.

E. A. LA MOTHE, M. D.

CHICAGO.

There are four distinct forms of this type of Keratitis as follows:

- 1st. The typical serpiginous ulcer.
- 2nd. The atypical serpiginous ulcer.
- 3rd. The marginal ulcer of the cornea.
- 4th. The *ulcus rodens*.

The typical form is almost always due to pneumococcus, which is characterized by a tendency to spread superficially rather than in depth.

The margins of the ulcer are grayish and infiltrated. There is always a purulent exudate associated with marked inflammatory reaction.

The causative factors in the pathology of the atypical serpiginous ulcer appear to be the ordinary pyogenic cocci, staphylococci, streptococci, colon bacilli, etc., together or associated with the pneumococcus. This form of ulcer excavates very rapidly. In other respects it resembles the typical form except in regard to the direction of extension. Its progress is extremely rapid and the local reaction more pronounced.

The Marginal Ulcer of the Cornea.

In this form, the ulcer, without any apparent provoking cause, appears in the marginal region of the cornea as a small superficial erosion with an infiltrated base. This ulceration soon develops into an ulcer located 1-2 mm. internal to the limbus. The loss of substance does not extend very deep. The walls or edges of the ulcer are vertical and sharply defined. There is a slight infiltration of the tissue about the ulcer, and as it spreads the outlines of the ulcer assume the form of a crescent parallel to the contour of the cornea. This affection appears under the form of a large number of ulcerations sep-

arate from one another, but still retaining their position on the periphery. The presence of an hypopyon is unusual. Zur Nedden claimed to have discovered in this type of ulcer a specific bacillus.

Rodent Ulcer.

This ulcer is superficial and at its debut is located at the periphery of the cornea, more frequently near the upper or lower margin. The side of the ulcer, which is directed toward the center of the cornea, is whitish, of regular outline and convex, and never shows the irregularities of the edges as seen in the serpiginous ulcer. The rodent ulcer receives its name from the habit of burrowing between the superficial laminae of the cornea instead of extending on the epithelial surface. The base of the ulcer generally remains transparent. It is rarely accompanied by a hypopyon, an intense inflammatory reaction accompanies this ulcer. By slow extension the ulceration may spread over the entire cornea. It varies in duration from two to four months. Andrade believes that he has discovered a specific bacillus having the following characteristics—small rod-shaped bodies, laying side-by-side, sometimes in groups, at times in chains. They are stained by Grans and are aerobic.

The history of medicine proves that the old practitioners were not ignorant of the gravity of the accumulation of pus in the anterior chamber, which they designated as an abscess or an apostem of the eye.

In our day modern bacteriological and anatomo pathological investigations teach us that the infectious ulcers, whether accompanied by a hypopyon or not, are caused by pathogenic elements introduced either into the superficial, or the deep layers of the cornea and causing the suppuration and necrosis of the tissue. But for this to occur there must be either a preliminary exfoliation of the epithelium or a penetrating wound of the stroma of the cornea. This has been repeatedly demonstrated by laboratory experiments.

The clinical and bacteriological observations as made in our days teach us that a great number of micro-organisms can intervene in the pathogeny of infectious ulcers. This has been demonstrated by a large number of ophthalmologists since the work of Leber, 1879, on a case of Kerato-mycosis aspergellar causing an hypopyon. Shortly after Uhthoff, Fuchs, Schirmer, and DeWicherkiewicz corroborated the above facts and

pointed out the proper and constant characteristics of the ulcer aspergellaris, which are as follows: The surface of the ulcer presents a smoky desiccated aspect, covered by a clotted sediment formed by a mushroom like mass of which curetage does not prevent corneal exfoliation.

This was the beginning of a new era in the researches concerning the etiology of corneal suppurations. It was soon found that in addition to the progenic microbes, as the staphylococci and the streptococci, there are also other micro-organisms which can, and do, intervene in a more or less active way in the pathogeny of the ulcer with hypopyon. Ulthoff and Axenfeld collected 118 cases of purulent keratitis of which 69 presented the characteristics of the typical serpiginous ulcer, 23 of the atypical keratitis with hypopyon, 2 of Keratomalacia, 2 of pomaphthalmia starting with corneal ulceration, and two cases of Kerato-mycosis aspergillaris. Fifty-four times diplococcus of Fraenkel was found in the 69 cases of typical ulcer serpens. Twenty-eight times it was associated with other various micro-organisms. These facts already compel us to admit that this variety of hypopyonic ulcer is almost invariably caused by the above mentioned diplococcus.

Basso, in a series of sixty cases of Keratitis with hypopyon, has pointed out that the most frequently observed microbe is the diplococcus of Fraenkel.

Guaita, out of twenty-five cases of suppurative keratitis found diplococcus of Fraenkel, alone or associated with the staphylococcus in twenty-three cases.

Cuenod, in a series of fifteen cases of ulcer of the cornea of divers origins, found in three cases the presence of pneumococcus.

Petit, in his doctorate's thesis refers to thirteen observations of typical serpiginous keratitis due to pneumococcus, five cases of atypical keratitis with hypopyon, also caused by pneumococcus, although not presenting the classical appearance of the serpiginous ulcer, three cases caused by a liquifying diplobacillus resembling Morax's diplobacillus.

Zur Nedden, in thirty-five cases of primitive marginal ulceration, rarely accompanied by hypopyon, has found a special bacillus differing from that of Morax-Axenfeld, and also from liquifying bacillus of Petit. This special bacillus is described as small straight rods, or slightly curved, of 6 mm. in thickness and 9 mm. in length, with rounded extremities but

clearly differentiated by mode of staining and also by the mode of development in cultures from the bacterium coli, the typhic bacillus, the mesenteric bacillus of Kruse. It is aerobic, motionless and without capsule or spores. We found it in very small numbers in the exudate of the ulcer. Usually it can only be detected by cultivation. Per contra, the author could not find the bacillus either in affections of the lachrymal apparatus or in affections of the conjunctiva. The question arises, does this bacillus play a specific role in primitive marginal ulceration of the cornea? Zur Nedden seems to think that it does. He has found his so called "*Bacillus ulceris cornea*" sixty-five times during four years of his clinic at Bonn, out of 20,000 patients. The prognosis is benign even when there is a pronounced hypopyon. Kruger made a complete bacteriological study of a typical serpiginous ulcer with hypopyon. He isolated a diplobacillus which he could not identify with those described by Morax, Petit, Schweinitz and Zur Nedden.

Rochat has examined five eyes afflicted by serpiginous ulcer and found pneumococci present in three cases. In the remaining two cases he found certain diplococci greatly resembling the bacillus of Morax-Axenfeld, however, differing from the latter in several respects. It seems to be more closely allied to that of Petit, especially by its peptonizing properties and by its taking Gram's stain.

Paul has examined twenty-nine cases of ulcer of the cornea, caused by the diplobacillus of subacute conjunctivitis (Morax-Axenfeld). He observed one case, only, of keratitis caused by liquifying diplobacillus of Petit.

Erdmann collected out of 342 cases, 30 cases of corneal lesions consisting of infiltrations or marginal erosions.

Rollet and Aurand, by repeated experiments, have found that in addition to the *aspergillus fumigatus*, which is very pathogenic to man, there are several other species which have a special pathogenic action upon the cornea of the rabbit. The young spores of the *aspergillus fumigatus* have an attenuated virulence for the cornea. The *aspergillus flavus* is pathogenic but in a lesser degree than the above. It will provoke an intense purulent conjunctivitis, but the corneal lesions, resulting, are slight and are cured spontaneously in about ten days, if there is no hypopyon or other complications. The *aspergillus niger* is not very virulent; it produces but a moderate lesion at point of inoculation, causing a conjunctivitis, but does not

cause any spreading corneal processes. The lesions heal in four to eight days. The *aspergillus pierum* possesses an attenuated virulence, having but a slight tendency to spread over region adjacent to the point of inoculation. Cure is accomplished in three to eleven days. The *aspergillus gloeum*, the *aspergillus ostianus*, and the *aspergillus minimus* are not pathogenic to the cornea.

Bieth reports two cases of corneal ulcer followed by panophthalmitis. Bacteriological examination and cultures revealed the presence of the *bacillus subtilis*.

The bacterium *coli* observed by Axenfeld, Groemer, Bietti, Taylor, Randolph, Mercanti, and Maret, as being in the pus of certain cases of dacryocystitis, had not been incriminated as a causative agent of the hypopyonic keratitis when Zur Nedden clearly demonstrated in one observation that the *bacillus coli* had been the exclusive cause of an hypopyon following an injury to the cornea.

I will further mention that Stocwer and also Landsgaard have confirmed the presence of yeast in certain corneal lesions. The latter at the Congress of Moscow in 1900, reported a case where keratitis accompanied by hypopyon seemed to have followed a corneal ulcer, the surface of which was covered with yeast cells, which he was able to successfully develop on agar and peptonized bouillon, but the results obtained from inoculation were negative.

The clinical observations of competent investigators, corroborated by experimental pathology, have abundantly proven that the inoculation of the cornea with pure cultures of micro-organism, such as the staphylococci, streptococci, pneumococci, *bacillus tuberculosis*, *aspergillus fumigatus*, *leptotrix bucalis*, etc. there follows a suppuration, the cause of which depends upon the nature of the infectious agent which provokes a more or less purulent disintegration of the corneal tissues with ulceration.

From what has been said, there is a possibility of establishing in the near future a classification of corneal ulcers, based upon the diverse microbial agents referred to above.

The great masters, such as Nesseloff, Eberth, Pfaugen, Leber, Conheim and Ranvier, soon recognized that the cornea offered the best field for the study of phlegmasic processes in general. At the same time they cleared up the evolution of

the suppurative processes of the corneal tissue caused by microbial infections.

The evolution of the septic inflammation differs somewhat from the aseptic. In the infectious inflammation the reaction is more or less rapid, depending upon the virulence of the inoculated agent. The first fact observed is the multiplication of the microbes at the point of inoculation, and the degenerative alterations of the surrounding corneal cells, which is probably due to the concentration of the toxins. Following the first fact observed, comes a secondary phenomena, the diffusion of the toxins. This diffusion has a long range effect upon the vascular system of the eye. The hyperaemia causes dilatation of the vessels and extravasation of leucocytes: these are attracted by the infected focus and combat the bacteria in two ways:

1st. Directly on the bacteria by phagocytosis, and on their toxins by the concentration of chemical products.

2nd. On the microsed tissue by forming a ferment which dissolves the bacteria and facilitates their elimination.

As the result of conclusive experiments, it is now conceded that the leucocytes cannot pass through the membrane of Descemet. How then does hypopyon originate? This is the snag, here is where the pathologists become divided into two camps. One school with Elselmig, Verdesse and Fuchs favor the hypothesis of an early perforation of the membrane of Descemet. In this case the hypopyon would be formed by osmosis of the leucocytes and pus globules. The other school with Winsterteiner and Leber sustain Conheim's theory, based on the diapedesis of the white globules. The leucocytes would thus be brought into the anterior chamber by the ciliary bodies.

If, in a few instances the membrane of Descemet has been found perforated at the first appearance of inflammation, it only proves Petit's theory that it was an eye, which, for some cause or other, there had been a previous hypertony. In fact it is recognized that a slight hypertension will occasion the rupture of the membrane of Descemet.

The experimental results obtained by Uthoff and Axenfeld, also permit us to affirm that the rupture of the membrane of Descemet is always slow to occur, and that the hypopyon does not contain any microbe as long as the purulent focus has not penetrated into the anterior chamber. Hence, the important deduction can be made, that keratitis with hypopyon is always of an external origin. Of nine cases reported by Fuchs and

Elschnig, Petit concludes that eight are referable to eyes which have previously been afflicted with chronic glaucoma or in other words, pathologic eyes. This probably explains the early perforation, in these cases, of the membrane of Descemet.

Hertel in a series of six observations of early perforation, found four occurring in relative glaucomatous eyes, hence dystrophic eyes.

Experiments have shown the power of resistance as possessed by the membrane of Descemet against the inflammatory processes of external origin. Andrejero in a thesis at St. Petersburg confirmed the above statement in a most thorough manner by a series of seventy experiments—consisting in inoculations of the cornea of the rabbit with streptococci and never once finding the membrane of Descemet perforated.

As to the process of repair, this is accomplished by the proliferation of the cells of the proper tissue of the cornea and the membrane of Bowman, which have subsisted at the periphery of the cornea and which have been respected by the ulceration. But it is indispensable that the membrane of Descemet should not be destroyed; this membrane, in fact, is utilized as a substratum to the new corneal tissue which spreads centripetally over the membranous surface. This process of repair does not begin until the leucocytes have completed the destruction of the microbes. Then the necrosed corneal tissues are eliminated, the suppuration dries up and the ulcer has a tendency to clear.

The first evidence of repair is seen in the development of new vessels having for their point of departure the path of the limbus nearest the focus. The function of these vessels is to furnish the necessary material to repair the lost substance. Other signs of regeneration are seen in the mitotic division of the corneal corpuscles, and these corneal corpuscles form the cicatricial tissue. If microbes play the principal role in the suppuration of the cornea, there are, also, other factors which, favoring their development, exalt or attenuate their virulence. It is now conceded that the virulence and peptonizing power of germs is enchanted by association. The divers dyscrasic states, as diabetes, albuminuria, alcoholism, certain general infectious inflammation, as cholera, cerebro-spinal meningitis, and, in fact all epidemic disease, prepare in a marvelous manner the grounds for the implantation of a new synthesis on the cornea and render the suppurative process infinitely more grave.

Paralysis of the trigeminus nerve and certain occupations in which the eye is exposed to dust or to irritant vapors or gases, in particular the harvesters are exposed to hypopyonic ulcers. Certain previous inflammation, such as chronic catarrh of the conjunctiva or of the lacrimal apparatus, the paralytic lagophthalmia and the chronic absolute glaucoma, particularly favor the development of Keratitis, with hypopyon.

The symptomatology of the infectious ulcer of the cornea may be naturally divided into two orders—the physical and functional or the subjective signs, their severity depending upon the virulence of the infection and the condition of the patient.

The patient's attention is first attracted to his trouble by the redness of the ocular globe, which ordinarily follows conjunctival catarrh, an abundant secretion of tears and photophobia. Direct examination reveals an episcleral injection and slight chemosis on the side where the ulcer began. We perceive by oblique illumination a slight infiltration and numerous small transparent vesicles; it is the epithelium which exfoliates. Slowly the corneal focus changes in aspect, the infiltration becomes more opaque and takes on a grayish tinge with a convex border directed toward the center of the cornea; it is what the old masters termed an onyx, because of its resemblance to the onyx of the nail. At other times grayish striations are seen extending from the purulent focus toward the center of the cornea. The infiltrated parts necroses, and the ulcer progresses as long as we can see at the periphery a grayish or grayish yellow wave like undulation filled with globules of pus. Then progressively we can perceive the formation of a secondary vascularisation which is an anatomical process leading to cure. The edges of the ulcer shrink and become flat, the infiltration disappears gradually and the ulcer begins to regress (and progresses toward obliteration). While the ulcer is in process of formation we often see in the anterior chamber a purulent accumulation which is nothing but an hypopyon, the latter can be distinguished easily from the onyx whose upper border is convex while the superior border of the hypopyon is either rectilinear or concave with a tendency to take the most dependent point on change of position of the head. This purulent collection formed frequently only of leucocytes and fibrinoid material secreted by the iris and the ciliary body, is some times very adherent to the still healthy corneal tissue.

This is due perhaps to the exfoliated endothelium entering into the intra-cavitary purulent magma still held by a few fibres to the membrane Descemet. This purulent collection in the anterior chamber is generally in a mass, but sometimes disseminated foci are seen on the posterior face of the cornea; this occurs in the atypical ulcers, and is of a grave prognostic omen. Purulent disintegration of the whole cornea is to be feared, or in fortunate cases for the prothesis we find indications of hernia of the membrane of Descemet which is thrust forward by the intra-ocular tension and becomes encysted in the cicatricial tissue either partly (Nephelium) or wholly (Keratocele).

This affection already complicated, can terminate in many other ways not less disastrously, when the infection extends to the vitreous humor or to the choroid: in such cases we have a panophthamia, causing the loss of the organ.

In addition to the physical symptoms, not less important, there are the functional or subjective symptoms. Beside the epiphora and the early photophobia, we have the ocular and periocular pains which appear with nocturnal acerbations. These pains may, especially in the young and nervous, subjects cause delirium and insomnia. In the old, debilitated, and the cachectic the pain is less intense. A period of intermission of pain in the course of a corneal ulcer is not a sign of early recovery, very often it indicates the occurrence of a perforation which lessens the intra-ocular tension and thus relieves the pain but aggravates the prognosis. As to the effect on vision, this varies in accordance with the amount of disaggregation of the corneal tissue and with the severity of the iritis which always accompanies ulcers of this nature. The final result varies from a semi-transparent opacity (nebula) up to a complete leucoma with anterior and posterior synechia and occlusion of the pupil.

Clinically, it is not possible to differentiate Keratitis with hypopyon of diplobacillary origin from those caused by pneumococci: however, the prognosis and the treatment of these two varieties are very different. In fact, while in the latter variety, cauterisation, the operation of Soemisch or serotherapy may be necessary, a conservative therapeutic with sulphate of zinc will usually be found sufficient in the ulcerations caused by the diplobacilli. The diagnosis based on microscopical and cultural examination is the only one that will permit the institution of a rational therapy.

The first step in the treatment is to sterilize the colonies of

microbes, which have invaded the corneal parenchyma. To accomplish this we have a large number of agents and means more or less favored, although different in their composition and in their mode of application, but all having the same object—the destruction of the microbes.

Recent bacteriological investigations go to show that there exists microbes inimical to the eye. From this there has resulted a new specific therapy appropriate to each individual species recognized by bacteriologists. As yet, specific serum therapy is in its infancy, I will simply indicate the means of treatment that experience has accepted and mention those that medical logic permits us to try and leaving to the sagacity of the physician the choice of treatment according to the exigencies of the case.

Antisepsis is the first weapon to be employed against all infectious processes. Irrigation twice daily with a warm solution of iodide of mercury 1/20,000, as of corrosive sublimate 1/10,000 or of the cyanide of mercury 1/5,000 are of great service and in many cases sufficient. With this mode of treatment comes the caustic application used by many but recommended by few. Dufour employs a 20 per cent solution of carbolic acid, Pflueger uses pure lactic acid, Jacqueau prefers the peroxide of hydrogen, Snellen, Haudmann, Hillmann and Chibret make use of tincture of iodine, Bullard counsels nitric acid, and Eperon in a recent work says that the sulphate of zinc in 20 per cent solution has given him gratifying results. He makes a distinction between the blind and brutal caustics, that destroy everything in their path, normal and diseased tissues alike, and the intelligent caustics, the escharotic action of which is limited to the sphacelus alone. He refers to the chloride and sulphate of zinc as a type of the latter. In a series of twenty-five cases of Keratitis with hypopyon, one application to the surface of the ulcer has been, in nearly all cases, successful in checking the infectious process.

The igneal cauterization has also been employed with great advantage because it realizes two indications which are desired in these cases—destruction of the infectious focus and stimulation of the local circulation. But it is difficult to control or measure its action, nevertheless it is one of our best methods of treating the infectious ulceration of the cornea. Schultz combined the advantages of the paracentesis of Soemisch with the actual cautery, in cauterizing, so that the aqueous humor flows out.

Since Saemisch, we have often used his button hole incision, which did not always respond to the hope of the ophthalmologist, either because it was performed too late, when the ulcer had covered more than one-half of the cornea, or because it opened a door to infection of, or caused prolapsus of the iris. In spite of its drawbacks, it has given good results in certain selected cases. I am of the opinion, that a paracentesis of the cornea, made at the most favorable point and sufficiently large to evacuate the hypopyon if there be one, or to combat the hypertony in such cases, will accomplish as much with less inconveniences. A point in favor of paracentesis is that according to experimental research on the existence of a bactericidal substance in the aqueous humor of the normal human eye, Zur Nedden concluded that, though the aqueous humor of the normal human eye has no bactericidal power, yet it does stop the development of the bacillus of dysentery. On the contrary, a drop of the first aqueous humor, in case of serious iritis of the human eye, will kill 3,000 colonies of the latter bacillus, and one drop of the second humor in the same eye, one hour after the anterior chamber has been refilled, killed 7,300 colonies. Thus the aqueous humor acquires bactericidal properties in inflammatory affections of the cornea. As long as the inflammation progresses the bactericidal power of the aqueous humor remains high; it diminishes with the subsidence of the inflammation. After the puncture of the anterior chamber the bactericidal substances of the normal blood also pass into the cornea. Thus it may be demonstrated, of the serpiginous ulcer in particular, that the morbid agents are killed or very much weakened by paracentesis or Keratotomy of Saemisch.

Hot applications frequently give splendid results. This is often clearly seen by the rapid resorption of the hypopyon and the cessation of the corneal ulcerative process. This is no doubt due to increased phagocytosis through the dilation of the vessels. Furthermore, it favors the vascularization and formation of new tissue. The sharp pains are quickly relieved as though one was dealing with an attack of acute glaucoma; this of itself is valuable in the treatment of the ulcers of the cornea.

When the pains become keen and lancinating, the occlusive bandage is indicated. A collyrium of cocaine or dionin also lessens the photophobia. The collyrium of atropine in correlation with the hot compresses becomes very important in the treatment of the infectious ulcers because of the iritis which

always accompanies these ulcers. The atropine by contracting the iris necessarily diminishes the quantity of blood contained in the vessels and thus directly combats the hyperemia without referring to its anodyne effect in paralyzing the sphincter and in keeping it in repose. Still when the ulcer is accompanied by a large hypopyon, and hypertension is manifested, then atropine must give place to eserine which often causes a rapid disappearance of the hypopyon by favoring the filtration of the aqueous humor through loosening of the iridal angle, and by diminishing the dialbuminose in contracting the vessels of the iris and of the ciliary bodies. The instillation of collyria or the employment of antiseptic pomades is an adjuvant of undoubted efficacy by maintaining on the infected wound a bactericidal substance.

For the last few years subconjunctival injections have been employed in the treatment of infectious ulcers of the cornea with or without hypopyon, but with varying success, hence, on one hand, we have enthusiastic advocates of this mode of treatment, and on the other hand, skeptics. Among the latter Bach of Wurzburg, proceeding experimentally on rabbits with pure cultures of staphylococci aureus inoculated into the cornea, concludes that the subconjunctival injections of sublimate solution are absolutely without the therapeutic value. He claims that they augment the degree and the duration of the ocular reaction. Men of great authority advocate their use and some praise them highly. Terson lauds the subconjunctival injections of sterilized air in dry scleromatous Keratitis of tubercular origin and in marginal infectious ulcers of the cornea. It is to be remarked that this method of treatment has a marked anaesthetic action. Maggi has made tests with the subconjunctival injections of bichlorhydrate of quinine 1.400, chloride of sodium $\frac{3}{4}$ per cent and sublimate of mercury 1.5000. He prefers the quinine which exerts a remarkable stimulation on the resorption of the pus in the anterior chamber, and in limiting the infectious processes. That the subconjunctival injections, even when made with mercurial salts, exert any long distance germicidal power, is doubtful. It is probable their action is simply that of a revulsant. In Dr. Darier's hands it has shown very favorable results when employed intravenously on the course of ocular infection, especially hypopyonic ulcers.

Zirm, Sgrass and De Bernardinis have practiced corneal heteroplasty in the treatment of the *ulcus rodent* with splendid

but not lasting success, the loss of the substance having been replaced by a graft of a cornea of the rabbit.

Paul Roemer of Wurtzberg claims that phagocytosis does not play the leading role in the cure of serpiginous ulcers. The pneumococci of slight aggressiveness, only, can thus be destroyed by phagocytes. Phagocytosis in the cornea is due to the action of thermolabile substances of the serum, and previous to this action, it is necessary that these bodies come in contact with the pneumococci. This phenomena is very slow to occur in the cornea on account of the poor circulation in that tissue. In such condition the anti-pneumococci serum can be advantageously employed since this serum is not bacteriotrope but anti-infectious. The same author reports five observations of cases treated with anti-pneumococci serum. They were cases of serpiginous ulcers, four of which had hypopyon, treated three to six days from the onset. In three cases the subcutaneous injection of 10 cc. of serum checked the ulceration and stimulated the rapid resorption of the hypopyon, in 24 to 36 hours. In one negative case the subconjunctival injections were made; in the other case the quantity of serum injected under the skin, seems to have been insufficient, because, after the stoppage of the infectious process, relapse occurred.

Darier, while remaining a fervent advocate of subconjunctival injections, also reports a few cases of serpiginous ulcers treated successfully by sero-therapy. He reports three cases—in the first case an infectious ulcer of the cornea; in the second, a grave post-operative infection with a tendency toward panophthalmia; the third an infectious iridocyclitis, which were all cured after three or four subcutaneous injections of 8 to 10 cc. of anti-diphtheric serum. He also obtained, from the use of anti-tetanic serum, identical results to those obtained by the use of anti-pneumococcic serum against ulcers of the cornea. These sera seem to exert a favorable action on the evolution of infectious processes, traumatic or post-operative, in nature. It fully confirms Roemer's views that the serum has an anti-infectious action, rather than a bactericidal action.

Framaget reports two cases of Keratitis with pneumococci, in which all therapeutic agents had proven useless. The eye seemed definitely lost. Recovery began 48 hours after an injection of 10 cc. of anti-diphtheric serum; the injection was repeated on the following day, *per contra*, in a hopeless case of staphylococci ophthalmia similar injections prove negative.

Schnege, Calderaro, Paul, and Zur Nedden, all reported the successful employment of serum therapy, but only in recent and circumscribed lesions. These tentative experiments, with sero-therapy, are interesting, though this method of treatment is still in the experimental stage. From a practical point of view the known facts justify one in believing that it is in that direction that we must look for a rational therapy.

Though by means of the methods indicated in this paper, we are able to save eyes from the destruction which menaced them, nevertheless evidences of previous diseases may persist such as altered corneal curvature, irregular astigmatism, irido-capsular synechia, etc. These are all new indications which must be met by appropriate therapeutic measures.

BIBLIOGRAPHY.

- Leber, Arch. fur Opht., 1870. P. Vol. XXV.
 Uthoff, Arch. fur. Opht., 1883. Vol. XXIV.
 Fuchs, Wien. Klin. Woch., 1894. No. 45.
 Schirmer, Graef's Arch., 1896. XLII.
 Wicherkiewicz, Arch. fur Augen, 1900. P. 361, XL.
 Uthoff and Axenfeld, V. Graef's Arch. fur Apht., 1896, XLII
 1897, XLIV.
 Basso, XI Congress Med. int. de Rome, 1884.
 Guaita, XI Congress Med. int. de Rome, 1894.
 Cuenod, Soc. Franc. d'Opht., 1895.
 Petit, These de Paris, 1900.
 Zur Nedden, Von Graefe's Arch. fur Opht., 1902, LIV. 1904, LIX.
 Krauger, Zeitschrift, fur Augen, Jan., 1903.
 Rochat, Soc. Neerland. d'Opht., May, 1904.
 Paul, Klin. Monats, fur Augen, Feb., 1905.
 Erdmann, Klin. Monats. fur Augen, May, 1905.
 Rollet and Aurand, Soc. Franc d'Opht. Congress, 1905.
 Bietti, La clinica oculistica, June, 1907.
 Zur Nedden, Klin. Monats, fur Augen, 1902, XL. Klin. Monats.
 fur Augen, 1904.
 Landsgaard, XII. Congress int. of Moscow.
 Purser, Dublin Journ. of Med. Science, 1872.
 Feltz, Journal d'Anat. et de Physiol. de Strasbourg, 1872.
 Pfangen, Strischers Med. Jahrbucher, 1873.
 Leber, Centralblatt, 1873.
 Conheim, Arch. fur Ophtalin, 1874.
 Petit, Ann. d'Ocul., 1900.
 Elchnig, Graef's Arch. fur Opht., XLV, 1901.
 Andrejero, These de St. Petersbourg, 1879.
 Eperon, Arch. d'Ophtal, 1907.
 Paul, Klin. Monats. fur Augen, 1905.
 Schnege, These de Koenishberg, 1904.
 Calderaro, la Clinica oculista, 1903.
 Roemer, Zertschrift, fur Augen, 1904.
 Schultz, la Clinique. Opht., 1904.
 Terson, la Clinique Opht., 1906.
 Maggi, Annali di Ottalmologia, 1907.
 Bach, the 1888 English int. Opht. Congress, 1894.
 Chibret, Recueil d'Opht., 1891.
 Fromaget.
 Wintersteiner, A. F. O., 1901.
 Elschnig, A. F. O., 1901.

- Leber, Die Ent. der Entz. Leipzig, 1891.
 Wagenmann, A. F. O., 1892.
 Bach and Newmann, A. F. O., 1897.
 Parson, The Pathologie of the Eye, 1904.
 Stoeuer, XIII Congress int. de Med., 1900.
 Davidson, Trans. Opht. Society, Vol. XXVI, 1906.
 Panas, Traite des maladies des yeux, 1894.
 Zelenkwosky, Medizinskoie, Obos. No. 20, 1906.
 Jacqueau Lyon Medical. No. 6, 1907.
 Birch-Hirschfeld, XV Congress int. of Med., Lisbon, 1906.
 Zirm, Societe imp. royal des Medecins de Vienne, 1906.
 Liegard, These de Paris, 1906.
 Spehr, These d'Iena, 1906.
 Cnace, Section on Opht. College of Phys., Philadelphia, 1906.
 Sumway, Section on Opht. College of Phys., Philadelphia, 1906.
 Stewart, Homeop. Eye, Ear and Throat Journal, March, 1906.

DYSTROPHIA EPITHELIALIS CORNEÆ.

BY ROBERT G. REESE, M. D.

NEW YORK.

No doubt, many ophthalmologists saw cases of dystrophia epithelialis corneæ and failed to classify them before Prof. Fuchs' masterly monograph (1) appeared in 1910 describing and naming this condition.

As Fuchs states, affections of the cornea are generally divided into suppurative and non-suppurative. There is, however, an intermediate group, which should be regarded as dystrophies of the cornea.

The latter are distinguished from inflammatory conditions by a slow and invariably progressive course, while the inflammatory diseases are marked by a period of progression, followed by a period of regression. The differential diagnosis can hardly be based upon the absence of inflammatory signs in the dystrophies, as they may also be absent in the true inflammatory lesions, e. g., in some cases of parenchymatous keratitis. Anatomically the dystrophies are characterized by degenerative changes, while the inflammatory lesions are characterized by leucocyte invasion. A physiological parallel to the dystrophies is found in the arcus senilis, i. e., a deposit of fat and hyaline degeneration. The majority of cases of dystrophy may be regarded as an expression of local disturbances of nutrition. There are, however, three forms resulting from general malnutrition:

- (1) Due to deposits of mucin and occurring in myxoedematous subjects.
- (2) Due to thyroidectomy, and

*Read at Section on Ophthalmology, N. Y. Academy of Medicine, Nov. 18, 1912.

(3) The greyish green discoloration of the cornea occurring in disseminate sclerosis.

I report herewith a case which I diagnosed after reading Fuchs' article:

Mrs. H., aged 74 years, with negative antecedent history, except for progressive impairment of vision for the past four years, and at present in excellent condition.

The vision was 10/200 in the right eye and 15/200 in the left and did not show any daily variation. The tension with the Schiötz tonometer was 18 mm. Hg. in the right eye and 25 mm. Hg. in the left. The tactile sense was preserved to a limited extent, as indicated by the necessity of having to instill holocain before the tonometer could be used. Both corneae were, however, insentitive when brushed with a pledget of cotton. There were no evidences whatever of ciliary or conjunctival injection. The anterior chambers were of normal depth. The irides reacted sluggishly, both directly and consensually, and showed no synechiae or other signs of old inflammation. Under cocaine mydriasis the right pupil measured 4.5 mm. and the left 5 mm. The lenses were sclerosed and the fundi were indistinctly visible by the indirect method and showed no excavation of the optic nerve heads or apparent gross lesion.

In both corneae there were diffuse, irregular, grayish opacities with serrated borders and confined mostly to the lower inner quadrant, but not extending to the limbus, and more dense in front of the pupil without presenting a raised line in the horizontal meridian, as in the cases described by Fuchs. With the loupe, could be seen distinct, minute vesicles of uniform size, evidently occupying the epithelial layer and appearing as little black spots against the pupil. The epithelium had a wrinkled, oedematous appearance over the opacity, with no denudation—as shown by not staining with fluorescein—and the parenchyma showed horizontal striae.

I have treated this patient for four months, and there has been no appreciable improvement, although she claims to see much better.

The treatment consisted of dionin, holocain, and massage locally, and the glycerophosphates internally.

I recall another case that came under my observation at the N. Y. Eye and Ear Infirmary five years ago, and at that time I considered it a form of keratitis due to some trophic disturbance. The patient was a man 72 years of age who had

had failing vision for five years. The right eye showed a dense diffuse opacity of the cornea with a distinct tremulous bulla in the center of the opaque area. An iridectomy downward and outward had been performed at some other Institution, evidently for optical purposes, or to relieve the keratitis vesiculosa. As usual, there was a recrudescence of pain when the bulla was forming. The left eye presented the typical picture of dystrophia epithelialis corneæ, with all the subjective and objective signs. There was neither pain nor any other indication of inflammation. The left lens was sclerosed, and the right could not be seen. The vision improved from time to time and then receded, but at no time was it more than 20/100. The tension was slightly elevated in both eyes, but was easily controlled by the daily use of pilocarpine; and there were no other evidences of glaucoma.

The treatment consisted of tonics, glycerophosphates, and arsenic, and local applications of dionin, pilocarpine, and bichloride salve. After three years of treatment the patient disappeared; he had not improved but had retained practically the same vision.

Since 1900 Fuchs observed 13 cases of dystrophia epithelialis corneæ and states that he had undoubtedly diagnosed many cases as glaucoma prior to that time.

Paul Knapp (2) recently reported a case which was under his observation for years but was only diagnosed after the publication of Fuchs' article. He differs from Fuchs on two points. First, he does not consider the new formed tissue between Bowman's membrane and the epithelium, characteristic of this condition, as Leber (3) and also Fuchs himself have observed it in glaucoma. It must, however, be remarked here that Fuchs states that unquestionably these cases were erroneously diagnosed as glaucoma. Second, Knapp differs regarding the pathogenesis. He advocates a theory of oedema which he bases upon the following facts: The vacuolization of the epithelium indicates an oedematous condition of the cells; the parenchyma of the cornea was abnormally soft in his case; he noted great improvement following gentle massage; the upper third of the cornea which is the portion most exposed to pressure from the upper lid is the clearest portion always, and finally, oedema frequently occurs in affections of the superficial nerves.

In my case the epithelium over the opaque area seemed

oedematous, but I was unable to get any improvement from gentle massage.

Arnold Knapp (4) cites a case where the exciting cause seemed to be an operation for cataract.

Dystrophia Epithelialis Corneae is a disease of advanced age, the youngest on record being 43 years old, and it affects chiefly the female sex. It is usually bilateral and when unilateral always affects the right eye. The onset is insidious, visual disturbances existing for years before the condition is brought under observation. The symptoms are marked by absence of any manifestations of irritation—a slight degree of pericorneal injection having been observed in only two of the seventeen reported cases—by insensibility of both corneae, even when the lesion is unilateral, and by variations in vision.

The patients usually complain of the vision being worse in the morning in contrast to the vision in glaucoma, and the variations in visual acuity are not attended by variations in pressure.

Fuchs examined one case microscopically and gives the following pathologic report:

The changes are characterized by a greyish opacity and roughening of the surface of the cornea caused by small vacuoles in the epithelial cells and newly formed tissue between Bowman's membrane and the epithelium. In cases of long standing, the cornea is more opaque over the pupil and is somewhat thickened in the center so as to present an appearance of central ectasia. The newly formed tissue consists of homogeneous connective tissue without any signs of hyaline or mucous degeneration. The epithelial covering is thinner than normal, but the cells are not flattened or hornified; in the early stages the epithelium is probably thickened and vacuolated; the larger vesicles are due to the separation of the epithelium from Bowman's membrane, which occurs later in the disease. The corneal opacity extends downward, while the upper border of the cornea remains clear.

The anaesthesia of the cornea is due to the injury of the superficial nerve fibres of the epithelium, or of the subepithelial nerve plexus, or possibly of the fibres connecting the two which pass through Bowman's membrane. That the changes in the nerves precede the epithelial changes is shown by the occurrence of anaesthesia in the eye not affected. The explanation of the pathogenesis is therefore probably to be found in some

disturbance of nutrition affecting first the nerves and secondarily producing changes in the cornea. This nerve theory is supported by the fact that paralysis of the trigeminus is followed by keratitis neuroparalytica. The only complication having a bearing upon the pathogenesis is glaucoma; it occurs in a moderate number of cases—three out of Fuchs' thirteen—which indicates more than an accidental co-existence of the two lesions. It is probable that glaucoma results from the dystrophia, though there may possibly be some etiological factor common to both. The former view is borne out by the fact that it is always a chronic glaucoma that complicates the dystrophia, and the chronic form is generally secondary. The changes in the cornea possibly accompanied by hitherto unrecognized intraocular lesions, may prevent the escape of fluid and cause hypertension, and, in the advanced stage, glaucoma.

The only etiological factor known so far, is advanced age; as occupation seems to play no role, and all the cases reported, with one exception, were in good health and showed no signs of malnutrition.

Besides glaucoma, dystrophia epithelialis corneæ is to be differentiated from the opacities caused by vapors from naphtha and analine dyes, in which the epithelium is vacuolated. In these conditions, however, the lesion is confined to the palpebral aperture and disappears when the noxious agent ceases. Keratitis vesiculosa occurs in the acute form in neurotic subjects or together with herpes; in the chronic form it usually complicates some grave eye lesion. Postoperative sclerosis of the cornea in the aged, resembles dystrophia, but is probably due to traumatism of the endothelium.

BIBLIOGRAPHY.

- (1) Fuchs. Dystrophia Epithelialis Corneæ. Arch. f. Ophthalm. 1910, LXXVI, 478.
- (2) Knapp, Paul. Kasuistischer Beitrage zu der "Dystrophia epithelialis corneæ nach Fuchs." Arch. f. Ophthalm. 1911, LXXVIII, 303.
- (3) Leber. Arch. f. Ophthalm. XXIV.
- (4) Knapp, Arnold. Trans. Am. Ophthalm. Society, Vol. VII, part III, 745.

A PRACTICAL ELECTRIC PERIMETER.

BY NELSON M. BLACK, M. D.

MILWAUKEE, WIS.

ILLUSTRATED.

"That part of space which is simultaneously perceptible to an eye during sustained central fixation" is referred to as the field of vision. Those variations from normal in the extent and the form of a field of vision together with the (cerebral) interpretation of the stimulation of the different portions of the retina upon which the image of the test object is projected are the essential factors in perimetry used in making a diagnosis of pathologic lesions of the perceiving, transmitting and central portions of the ocular apparatus.

The taking of a visual field is in part: (a) a study of the light sense. (b) The determination of the visual acuity of the peripheral portions of the retina and (c) a study of the extent of the color perception of retina.

The field of vision depends upon the width of the pupil, the position of the plane of the iris, the state of adaptation of the retina, the intensity of the illumination of the test object, its visual angle, the saturation of the colors used in the colored test objects, and requires the undivided attention of the person examined.

The above mentioned requisites demand that visual fields be taken in the dark, if anything like uniformity is to be obtained. This requires the adaptation of electricity to the methods of perimetry. By taking the field in a dark room there will be but little variation in the width of the pupil. As there will be no attempt at accommodation the position of the plane of the iris will remain stationary. The retina will be in a state of greatest sensitiveness to light stimulation because of its dark adaptation. By taking a field in the dark there is nothing to distract the patient's attention.

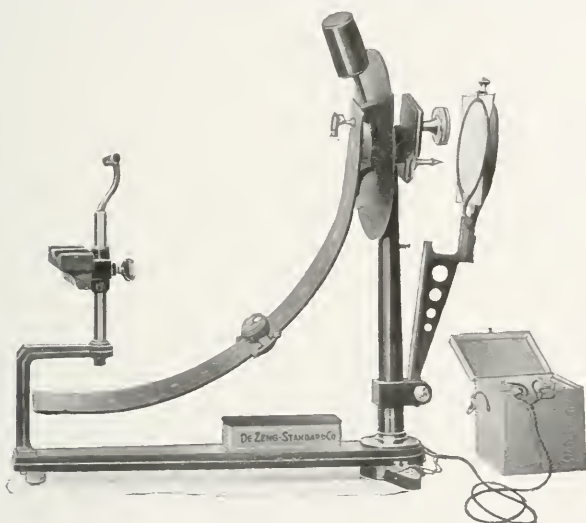
The advantages in the use of electricity in perimetry are many. The intensity of the illumination of the test object can be maintained absolutely the same, or may be increased or diminished as is occasionally necessary to more sharply outlined scotomata, or determine the line of demarcation of hemianopic areas. This latter feature is also of decided advantage in testing the light sense of various portions of the retina.

As in the old method of perimetry the size of the test ob-

ject,—i. e., the magnitude of the visual angle, may be from a point to ten or twenty millimeters.

In taking the color fields it is very important that the colors used for the test objects be pure. Pure spectral colors are very hard to obtain with pigment colored papers. With the electric perimeter absolute spectral colors are used.

It was thought at first that the best means of adapting electricity to perimetry was to have the transilluminated test object attached to a handle and take the fields in the old manner, by passing the target from the periphery of the perimeter arc to the fixation point. It was impossible, however, to read the de-



gree on the arc of the perimeter at which the test object was seen without using an additional light, which procedure defeated several of the objects attained in using electricity, i. e., that of adaptation of the eye, the slight variation in pupillary width and change in the position of the plane of the iris.

With the self-recording instrument in use such as the McHardy perimeter, this difficulty is easily overcome. The following is a description of the instrument made for the writer by the De Zeng Standard Co.:

The perimeter is designed after the latest model of the McHardy instrument and has an all metal arc and dial with the improved object carrier of truck construction. It has the enlarged chart holder, improved chin rest and hollow pedestal. The electric attachment for the transillumination of the test

object and the fixation point is so arranged that they may be operated independently, each being on a separate circuit.

The carrier is adjustable to the size and color of the test object required and contains a miniature electric lamp which is lighted by a trolley system arranged upon the back of the arc. There is a switch on the base of the instrument for opening or closing the circuit and through its agency the test object may be constantly or intermittently illuminated, as desired.

The fixation point is adjustable to the size desired and carries a miniature lamp encased in a light proof covering the same as in the object carrier and has an independent circuit breaker giving perfect current control. It is somewhat elevated above the front of the arc, allowing the test object to pass beneath, thus permitting the taking of a central field.

The current is supplied by a large portable dry battery having two separate and distinct circuits and rheostats for their control, one lighting the lamp at the test object and the other at the point of fixation. The rheostat can be so adjusted as to give the required amount of illumination in any position of the arc or carrier and is conveniently located for use in the dark room.

The electric attachment to this perimeter can be applied to any McHardy instrument now in use, which advantageous feature obviates the necessity of purchasing an entirely new instrument to obtain the advantage of the transilluminated instrument.

A CASE OF CEREBELLO-PONTINE TUMOR, DIAG- NOSED AND LOCATED THREE YEARS BEFORE DEATH.

By C. A. VEASEY, A. M., M. D.

SPOKANE, WN.

The notes of the following case of cerebello-pontine tumor, diagnosed and located three years before death supervened, seem to be of sufficient interest to merit their isolated report.

Mrs. C. J. M., aged 49 years, was first examined by me July 8th and 9th, 1909, in consultation with Dr. N. M. Baker of this city. The patient had complained of more or less headaches for several years, preceded three years before my examination by some deafness and tinnitus in the right ear. Eight months before I saw the patient the headache became much more severe and was worse in the occipital region, although she

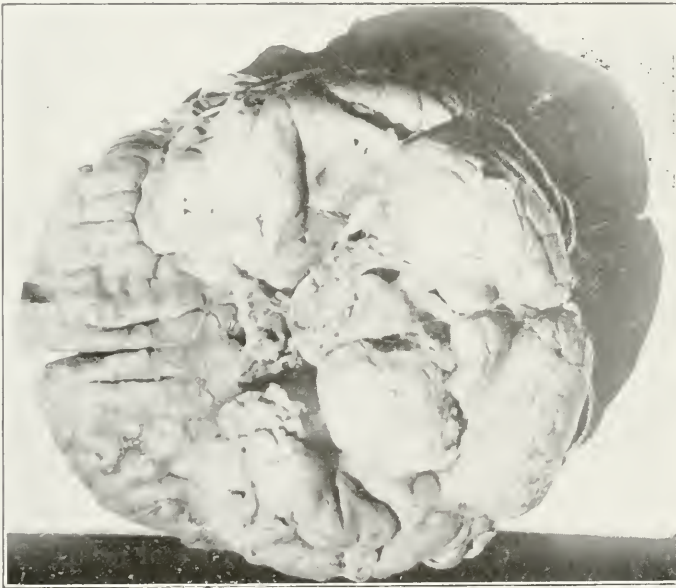
had also considerable deep-seated pain in the aural region of the right side. There had been some nausea and vomiting, the latter entirely independent of the ingestion of food, although the attacks had ceased some time before I had the opportunity to make my examination. The pain in the head and aural region however had continued. Shortly after the appearance of the deafness there had been frequent attacks of dizziness which had become much worse within the year. The patient had been gradually losing strength and had been unable to walk well for some months. An operation for gall stones had been performed by Dr. John B. Murphy of Chicago several years before. No history of tumor could be elicited, except that a maternal aunt had had some form of growth removed from her shoulder.

The patient had been examined by my associates, Dr. R. L. Thomson and Dr. Wilson Johnston with Dr. Baker, a short time before, and they had made a diagnosis of double optic neuritis with a strong probability of cerebral neoplasm.

As stated before, my examinations of the patient were made on July 8th and 9th, 1909. Both pupils reacted to light and in convergence and accommodation. The pupils were equal in size, about 3 mm. in diameter, in a moderately darkened room. There was double optic neuritis of the severe choked disc type. The nerve heads were much swollen, about 5D in the right and 7D in the left. There were a number of small hemorrhages, together with some exudate in the nerve heads. There was paresis of the right external rectus muscle. Marked nystagmus was observed upon rotation of eyes to extreme left, and a very slight nystagmus could be elicited upon rotation of the eyes to the extreme right. The nystagmus was horizontal when looking to the extreme left, vertical when looking up, and horizontal, but very slight, when looking to the extreme right. The form fields were moderately contracted, but there was no hemianopsia. Vision of O. D. equaled $2/5$, of O. S. $1/4$. There was no paresis of either of the ciliary muscles.

Examination of the regions supplied by the cranial nerves showed right sided facial paresis. Both the motor and sensory branches of the trigeminus on the right side were affected, the tactile sense being almost entirely abolished. Sense of smell could not be elicited in the right naris. The patient was deaf in the right ear, the left ear hearing the watch tick distinctly at 30 inches. Both tympanic membranes were slightly retracted.

There was great asthenia. The patient was confined to bed and unable to stand alone except for a moment or two. There was marked swaying with eyes closed and feet in juxtaposition (Romberg), though she apparently swayed as much to one side as to the other. Dizziness was a prominent feature, and there was marked ataxia. The knee jerks were abolished. Babinski reflex was absent. Hemiasynergia could not be demonstrated and no hypesthesia was discovered in other portions of the body than those supplied by the right trigeminus.



The urine at times contained albumen, but none was found at the time of my examination.

Here we have first the symptoms of compression or of intracranial tumor, viz., choked discs, intense occipital headache, nausea, vomiting, vertigo and ataxia, and as symptoms of localization we have the lack of function of the right auditory nerve, early development of noises in the right ear, diminution then failure of hearing on the right side, together with dizziness and vertigo. In addition we have involvement of the right facial nerve, the right sixth nerve, and the right fifth nerve, all, it will be observed, on the right side.

A diagnosis was therefore made of a tumor in the right cerebello-pontine angle, and the patient was advised to have an operation performed inasmuch as tumors in this neighbor-

hood are slow growing, usually well defined from the surrounding tissues, firm and removable. The patient declined operative procedure, and passed out of Dr. Baker's care into other hands.

I was advised that some operative procedure was subsequently performed upon the nose, with the idea of curing the condition, but the condition of course was not cured. The patient ultimately passed into the hands of Dr. E. D. Olmsted, who asked Dr. J. M. Neff of this city to see the case in consultation. This was nearly three years after my diagnosis and localization had been made. An examination made about this time by an oculist and aurist of this city reported that there was optic nerve atrophy, but no localizing symptoms. It is, of course, simply a question of having overlooked the symptoms of localization, because a growing tumor, slowly increasing in size, having produced paralysis by the intense pressure, could not again become in any condition in which that paralysis could have subsequently disappeared. Dr. Neff performed a decompression operation, in order to help the patient's intense suffering, not having been informed of my localization or of my connection with the case. The patient, however, I understand, at this time was in no condition for an operation for the removal of the growth to have been undertaken.

The autopsy subsequently performed under the direction of Dr. Neff by Drs. M. M. Patton and E. S. Jennings, revealed a tumor somewhat larger than an English walnut, in the right cerebello-pontine angle, pressing on the fifth, sixth, seventh and eighth nerves, exactly as my diagnosis had stated three years before. An examination of this growth microscopically by Dr. Patton, and subsequently by Dr. Wm. G. Spiller of Philadelphia, showed it to be an endothelioma. The accompanying photograph taken by Dr. Patton illustrates the size of the growth and shows its relation to the adjacent portions of the brain.

REPORTS OF SOCIETIES.

COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF JANUARY 18TH, 1913.

DR. E. M. MARBOURG PRESIDING.

Quiet Iritis.

Dr. Otis Orendorff presented a girl of eighteen years each of whose eyes had for some time been affected by a sluggish iritis. The patient's general health had been good except for a tendency to muscular rheumatism and a liability to colds. The mother and a brother of 12 years had myopia with low corrected vision. The patient came first in July, 1912, there being slight ciliary hyperemia and a thin pupillary membrane. The pupils had dilated slightly and irregularly under mydriatics. V. of either eye was then 8/10 with —1. D. Protoiodide of mercury and atropin had been used, later atropin and dionin, and again a vigorous treatment with iodides and salicylates. Left vision had continued to fall until it was now 1/10. The pupils were adherent to the lens capsules, and the irises were ballooned. Hypertrophied turbinates had been removed.

DISCUSSION. Dr. Coover: In these cases of quiet iritis, where posterior synechiae exist, you will have recurring attacks. An attempt should be made to break up the adhesions around the pupil and do a broad iridectomy. If the separation is very difficult, break up as many adhesions as possible or as may be necessary for the iridectomy.

Dr. Aufmwasser thought the inflammation in the nose might have had something to do with the eye condition.

Several members expressed their agreement with Dr. Coover.

Dr. Black remarked that traumatic cataract was liable to result from doing the operation, but the chance must be taken.

Unilateral Exophthalmus.

Dr. Franklin E. Wallace presented a colored woman of 38 years who had noticed a prominence of the right eye since November, 1912. The condition was said to have increased and had been associated with throbbing and occasional aching on the same side of the head. There was decided exophthalmus of the right eye, but the eyeball was otherwise quite normal in appearance and movements were not limited. Tension was normal. Pressure showed some tenderness. The nasal cavities, especially the ethmoid region, were apparently free from

disease. Transillumination of the frontal sinuses and antrum was normal. The fundus was normal. The patient was married, but her husband was described as a "rover." R. vision was 20/30 +.

DISCUSSION. Dr. Strickler was disposed to attribute the proptosis to some intraorbital condition.

Dr. Neepor suggested a unilateral exophthalmic goiter.

Dr. Hosmer would give iodides on the supposition of possible gumma of the orbit.

Dr. Melville Black thought a likely cause to be a syphilitic periostitis of the lower wall of the orbit.

Rodent Ulcer at Inner Canthus.

Dr. James A. Patterson presented a woman of 58 years at whose right inner canthus was a broad ulceration with an indurated base. The lesion apparently involved the periosteum below the inner canthus, and extended over the nasal process of the superior maxilla. What remained of the lower lid was everted, and cicatricial lines ran down the nose and across the cheek. So far as could be learned, the only treatment that the patient had had was with X-ray, over a period of two months. The patient stated that the growth had been developing for twelve years or more, but had only broken down in the latter half of that time. No glandular enlargement could be detected.

New-Growth of Bulbar Conjunctiva.

Dr. J. A. Patterson presented a man of 43 years who for the past year had noticed the development of a pigmented growth on the bulbar conjunctiva to the nasal side of the left corneal limbus. The growth was flat, irregularly massed, and encroached slightly upon the cornea. There was increased vessel formation, but no involvement of the iris or choroid, and the patient was free from discomfort. While under examination by members, the patient stated that he had been struck in the eye with a piece of coal some time before the appearance of the growth. (But a few days after the meeting he admitted to Dr. Patterson that he was uncertain whether the coal had struck the right or left eye, and also whether the blow had preceded or followed the first appearance of the growth.)

DISCUSSION. Dr. Bane thought the growth might be a pigmented sarcoma involving the episcleral tissue. Microscopic examination was necessary. He would remove the growth and curet the limbus.

Dr. Marbourg said that if microscopic section showed melanosarcoma he would at once enucleate the eyeball on account of the risk of metastatic growths.

Spontaneous Absorption of Traumatic Cataract.

Dr. J. A. Patterson presented a man of 21 years whose right eye had been injured by a piece of chicken wire. The injury occurred while chopping kindling wood, and the wire, after penetrating the cornea three mm. from the outer limbus, and also the pupillary margin of the iris, had become deeply imbedded in the outer part of the lens. The wire was promptly removed by a general physician. When the patient was examined a half hour after the accident, there was little pain, but the eye saw nothing, and only the inner half of the pupil was dilated. There was no fundus reflex. X-ray examination for a piece of iron in the eye was negative. The eye was kept under atropin for two months, in the course of which time the lens substance became entirely absorbed, and what remained of the lens capsule fell below, so that the pupil was clear. With correcting lens (+12. sph. and low cy.) vision was 6/5.

Magnet Extraction of Piece of Iron Adherent to Uveal Tissue.

Dr. J. A. Patterson presented a boy aged 11 years whose left eye had been penetrated by a piece of steel or iron while his brother was striking with a cold chisel and hammer on a piece of iron. The iris and capsule had been lacerated, and the lens substance had passed into the anterior chamber. The eye almost white and free from pain when the patient was seen on the day after the accident, and application of the magnet produced apparently no pain. Mental deficiency and intractableness of the patient caused difficulty in applying the magnet, and would have rendered anesthesia necessary for X-ray examination. Dr. Patterson was ill for a week, after which the iris was found to have a suspicious rusty tint. On Jan. 7, fifteen days after the injury, use of the magnet under ether brought a foreign body into the anterior chamber but not out of the eye. Even after incision as for cataract was made in the cornea, the foreign body only came away on inserting a pair of scissors into the anterior chamber and bringing the magnet into contact with the scissors. A long strip of pigmented tissue came away with the foreign body. An equally large piece of tissue remained in the corneal wound and was cut away with the scissors. The eye had remained quiet and most of the time

without pain. The remains of the lens was opaque and occupied the anterior chamber. Tension was minus.

DISCUSSION. Dr. Coover felt sure that the eye would have to be enucleated.

Dr. Black favored cleaning out the lens substance at the time of removing the foreign body. This saved nature a lot of work and tended to shorten the period of inflammation.

Dr. Patterson thought that if he had attempted to remove more of the lens he would have lost vitreous and had a flat globe.

Non-Inflammatory Interstitial Keratitis.

Dr. J. A. Patterson presented a woman of 25 years who had had in each eye an interstitial keratitis which had run an unusual course. She had been refracted in February, 1912, at which time she had merely symptoms of eye strain. In June there was an episcleritis in both eyes, with little photophobia or pain, and which under salicylates cleared up entirely in about six weeks. On September 27 she returned complaining of diminished vision, which was found to be due to an interstitial keratitis starting from the corneal margins, and presenting more or less circular areas of clouding. There was neither pain, photophobia, lacrimation, nor redness. The disturbance spread rapidly, but was partly arrested by mercurial inunctions. The teeth were noticed to be of the Hutchinson type, and a Wassermann test proved positive. The left eye had a small area of disturbance of choroidal pigment not far from the macula. On November 29th a 0.9 gm. dose of neosalvarsan was given. During the course of the corneal disease she had complained of occasional spells of severe pain in the left side of the head, lasting two or three minutes. Right vision had at one time fallen as low as 6/22 but was now better. Recently subconjunctival injections of citrate of soda had been used to favor osmosis and absorption.

DISCUSSION. Drs. Black and Aufmwasser recommended making subconjunctival injections of cyanide of mercury, preceded by acoin to lessen the pain.

Syphilitic Iritis.

Dr. A. C. Magruder presented a man of 25 years who had recently had an attack of luetic iritis in each eye. During the last three years there had been a number of minor injuries to the eyes, the patient being engaged in railroad work. From

Sept. 13 to Nov. 21, 1912, both eyes had been more or less red and painful, with intense photophobia. Wassermann test was positive, and combined treatment with potassium iodide and mercurial inunctions was instituted. In the left eye a sort of pannus extended over the cornea above and below, and there were old corneal scars. There was a peculiar wrinkled appearance in either the anterior capsule or cornea of the right eye.

DISCUSSION. Dr. Coover and others thought that the wrinkling was in the cornea.

Dr. Coover thought the history of the case pointed to a corneal lesion.

Dr. Neepor stated that when he had seen the case two years back the cornea took a faint stain at various points.

WILLIAM H. CRISP, Secretary.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING DECEMBER 19, 1912.

DR. WILLIAM M. SWEET, CHAIRMAN, PRESIDING.

Detachment of the Retina Probably Due to Sarcoma of the Choroid.

Dr. G. Oram Ring exhibited a woman, aged fifty-one years, who reported for examination at the Protestant Episcopal Hospital on December 1, complaining of dimness of vision in the right eye of about six months' standing. In the left eye the vision was normal. No gross lesions of the fundus were present, and the field for form and colors evidenced no abnormality.

The visual failure in O. S. was noticed while rubbing the right eye. Fingers are counted eccentrically at one meter. More or less soreness had been present for periods of a week or more at a time, frequently accompanied by a transient hyperemia. Palpebral fissure in the affected eye is about 2 mm. greater than that in the fellow eye, and the ball slightly more prominent. There is a tendency to divergence.

The pupillary reactions are not impaired, cornea, lens, and vitreous are clear. The disk in its outer half is grayish green, an atrophic crescent surrounds the outer border, beyond which is an area of pigment disturbance.

The refraction at the disk is emmetropic. The form field is somewhat narrowed, and there is an absolute and sharply defined scotoma corresponding to the region of retinal detachment.

One disk's diameter from the temporal side of the nerve

head, there begins an irregularly outlined elevation of the retina, which extends well above, below, and into the temporal periphery. The summit of the elevation, which is somewhat nodular, whitish, and mottled, is between six and seven diopters. The dilated retinal veins can be seen ramifying over the surface of the elevation.

The tension is slightly elevated. The Wassermann and tuberculin tests were negative; no valvular heart disease. The systolic blood pressure is 120 mm. Transillumination by the Würdemann light was negative because of the impossibility of placing it in a position sufficiently posterior. No glandular involvement was present.

There was no evidence of metastasis. The patient had never been seriously ill. The family history is negative. Syphilis and tuberculosis can be excluded, and there is no history of traumatism.

Dr. Ring called attention to Mr. Griffith's claim that traumatism bears no relation to the development of malignant disease.

The various new growths of the choroid with the differential diagnostic symptoms were considered, and the case presented as one of probable sarcoma of the choroid in the first stage.

Dr. S. D. Risley stated that Dr. Ring had very kindly given him the opportunity of studying his patient about a week before. After careful study he was prepared to join Dr. Ring in his diagnosis, viewing the case as in all probability due to a malignant growth in the choroid.

Dr. Zentmayer agreed with Dr. Ring's diagnosis. A point of interest in these cases is the difficulty in persuading such patients to have the eye enucleated at an early date. The first stage of sarcoma is often of very long duration, and this makes it difficult for the patient to comprehend the seriousness of the condition. They cannot believe that a process which is of such slow growth requires such radical treatment. In the case exhibited before the Section by Dr. Zentmayer about three years ago, the scotoma, which was between the blind spot and fixation had increased very little in the year's time that he was under observation, and he was doubtless lost as a patient because of repeated advice to have the eye enucleated.

Dr. H. Maxwell Langdon said that it seemed that the retinal detachment in Dr. Ring's patient was too far back for the Sachs or Würdemann transilluminators to be of any use

but it is probable that the ophthalmodiaphanoscope would have been of assistance by showing a difference in the amount of light coming through the detached portion of the retina.

Ocular Palsies in Tabes.

Dr. Sidney L. Olsho (by invitation) cited the history of a patient with multiple ocular palsies due to tabes. The pupils were regular and reacted to light and accommodation. In each eye there were evidences of old iritis. With a suitable correction the vision of each eye was 15/10. There was a paralysis of the right external rectus and the left superior oblique.

Dr. Posey said that from an analysis of sixty cases of tabes which had come under his personal supervision, he had found the oculomotor at fault in thirty cases, the abducens in six, and the trochlearis in two. In the remaining twenty-two cases the paralyzes were of a mixed type. Complete unilateral oculomotor palsy occurred in three instances. These figures corresponded closely with those of Unthoff, who found the oculomotor involved in 54 per cent of his cases, the abducens in 33 per cent, the trochlearis in 8 per cent.

Dr. Samuel D. Risley said he had seen a number of cases in which an ocular palsy was one of the earliest manifestations of tabes, and related the history of a case in which the diplopia came on while the man was waiting on the platform to address a large audience. The ocular palsy was transient, disappearing after approximately six weeks, but proved the forerunner of

Conical Cornea.

Dr. William Campbell Posey reported the history of a case of conical cornea successfully treated by the actual cautery. By thoroughly cauterizing the base of the cone and lightly burning the tip, Dr. Posey improved vision in the eye of a young girl with conical cornea from 3/100 to 5/22; and with a correcting glass to 5/7.5. As is usual, the apex of the cone was somewhat eccentric from the pupillary centre, so that the opacity resulting from the scar tissue left sufficient of the pupillary area of the cornea free, to permit of the unimpeded passage of the rays of light into the eye, no iridectomy being necessary. Dr. Posey reviewed the various forms of surgical procedure which had been devised, and said that the method which he had adopted was a combination of the operations introduced by A. Critchett and H. Knapp. He warned against a too deep

cauterization of the apex of the cone, on account of the dangers of perforation into the anterior chamber, and delayed healing from the thinness of the corneal tissue in that position. He thought the success in the plan he had adopted was dependent upon the contraction of the large mass of scar tissue which was created at the bottom of the cone. Healing was protracted, but was facilitated by free vascularization from the blood-vessels of the limbus adjacent upon the corneal wound. He had recently performed a similar operation upon the fellow eye, but it was too early as yet to judge of the ultimate result.

Dr. P. N. K. Schwenk thought that Dr. Posey deserved to be congratulated on the good result obtained in his case. In the case on which he operated he learned that the two smaller cauterizations made on the first eye brought about a better result than in the case of the last eye, where he tried to save time and suffering by doing a more extensive cauterization. The virtue lies in cauterizing with the hot iron, heated by an alcoholic lamp, rather than the electric cautery, where the danger lies in heating the aqueous to the injury of the lens. After cauterization a paracentesis of the cornea was performed by means of a broad needle, making a sliding flap of cornea in order to get a larger pupillary area in clear cornea.

After cauterization, the patient developed boils, which is quite common after ordinary burns in other parts of the body. The eyes have remained in good condition for over three years, and the result is permanent. Glasses having their centres in front of the pupillary centres or visual axes increases the vision. If another occasion arose to do this operation, Dr. Schwenk said he would resort to the hot iron rather than risk the electro-cautery. In his judgment these two recorded results are due to having been done by the hot iron. These two cases are the only ones where visual acuity is recorded.

Dr. Risley requested that, in closing the discussion, Dr. Posey would describe a little more definitely the exact location and extent of the cauterization. Any procedure which would afford relief to these unfortunate cases of conical cornea would be a great boon. He rose to call attention once more to a procedure he had himself adopted on purely theoretical grounds, and had employed in one case, which had already been presented to the College. The man was a professor of mathematics, and could therefore comprehend the purpose of the procedure when explained to him, and himself urged the operation.

After the instillation of eserine, contracting the pupil to a pin-head size, a section of the cornea including at least half of its periphery was made in the limbus, as though for the extraction of the lens, the aqueous was allowed to escape very slowly, and was effected without prolapse of the iris. A firm bandage was then applied over both eyes and allowed to remain for seventy-two hours, and reapplied over the operated eye for five days. As a result of the operation, vision had improved from a doubtful 20/200 to 20/70, and the man was enabled to go on with his work, his vision in all respects having been greatly improved. The procedure was based upon the well-known clinical fact that high degrees of astigmatism due to changes in the curvature of the cornea often result, after the extraction of cataract, particularly in cases where the section has not healed by first intention, the radius of curvature being much increased in the vertical meridian of the cornea.

Dr. William M. Sweet showed several of the Raehlmann hyperbolic lenses from a set which he secured in Germany about twenty years ago. He had tried this form of glasses in several cases of conical cornea, but in only one instance was the result any better than that secured by spherocylinder combinations. In this case the hyperbolic lens improved vision from 10/200 to 20/70.

Dr. Posey explained that the area cauterized comprised about one-sixth of the entire structure of the cornea, and was triangular in form, the apex corresponding to the summit of the cone, the base to a position in the cornea about 2 mm. distant from the limbus and parallel with it. Tattooing of the scar tissue was not performed for cosmetic purposes, as the disfigurement was not great, and the patient was well satisfied with the result.

Retained Pupillary Membrane and Fetal Iritis.

Dr. G. E. de Schweinitz and Dr. T. B. Holloway demonstrated with a Zeiss microscope a case of retained pupillary membrane which they believed had been associated during fetal life with an inflammation of the iris tissue.

The patient was a boy, aged sixteen years, who came to the University Hospital desiring an operation for a divergent squint of 28 degrees. No history of any inflammatory condition of the eyes could be obtained from the patient or his parents. The squint was first detected at the age of two years, gradually

becoming more pronounced. There was no paralysis of any of the ocular muscles. The diameter of the right cornea was 11 mm. and that of the left 12 mm. In the right eye the cornea was clear, the anterior chamber of normal depth. Aside from the conditions about to be described no abnormalities were noted in the iris. On the anterior capsule of the lens, occupying the position of the pupillary space, was a decided pigment blotch. From the upper and outer portion of the iris, at the deeper part of the pupillary border, there extended a moderately broad and firm, partially pigmented synechia. A similar condition was noted at the upper and inner portion of the iris border, while from the lower pupillary border there extended a very delicate non-pigmented fiber. All of these were attached to the anterior capsule of the lens, just at the border of the pigmented area. Up and out at the border of this area, and likewise down and in, could be noted a small white subcapsular opacity. An ophthalmoscopic examination did not reveal any changes in the fundus. The vision was 4/60, not improved by a lens. A retinoscopic examination showed a moderate compound hyperopic astigmatism.

In the left eye there were no congenital or acquired pathological changes. The vision was 6/5. A Wassermann test was negative.

They referred to some of the literature bearing on this subject, especially to Brückner's admirable article. They believed that while a few cases of pupillary membrane springing from the pupillary margin had been recorded, that these cases always suggested the possibility of an associated prenatal inflammation of the iris tissue. In the vast majority of cases of retained pupillary membrane the fibers arise from the minor circle of the iris and frequently from more than one root.

Dr. H. M. Langdon said that he had recently examined a man, aged thirty-two years, who had dilated pupils at birth, which had never contracted. At five years of age he was operated on for an internal squint of the left eye, with a perfect cosmetic result, but the eye is still somewhat amblyopic, the vision being 6/15 and there is no fusion. He was positive he had never had an inflammatory condition affecting his eyes, and his father confirmed this and was positive the pupillary condition existed at birth. The right pupil was about 8 by 9 mm. in diameter, and the left 7 by 8 mm. Each was bound to the lens by synechiae, which seemed to be nearly complete, the pupils

narrowing somewhat under a few drops of a one grain to the ounce eserine solution and slightly dilating to homatropine. The tension of each eye was normal to the finger, the media were clear, the optic disks healthy, and the fundi normal. It seemed that this must have been a case of prenatal iritis, and not a congenital malformation without inflammation, for without exudation it would seem impossible for the adhesions to form. The fact that they have so extensively formed with the pupils well dilated is also an unusual condition, and is probably due to the fact that the inflammation occurred just as the iris was growing forward and in contact with this portion of the lens.

Dr. Posey said that he thought Dr. Langdon's case should perhaps be considered as one of arrested development, due doubtless to a fetal inflammation of the mesoblast as it pushed its way in between lens and cornea to form the future iris. He recalled a paper read before the American Medical Association in 1897 on "Some Unusual Congenital Defects of the Iris," in which he referred to some of the effects upon the ultimate form of the iris in consequence of interference with the vascular loops and the surrounding connective tissue cells which go to make up the stroma of the iris.

Binasal Hemianopsia in Tabetic Optic Atrophy.

Drs. George E. Price and Charles R. Heed, after briefly reviewing the subject of binasal hemianopsia, recorded the case history of a tabetic subject whose visual fields disclosed a sharply defined binasal defect.

The patient was a male, aged forty-eight years, who noticed failing vision for the past three months. The vision of the right eye was 6/30, of the left eye, 6/21. There was pallor of both optic nerves, otherwise the fundi were healthy. The fields recorded an average contraction of ten degrees with a well-defined nasal blindness. A perimetric test with candles, three months later, showed absence of the nasal fields. At the time of a later examination the vision of the right eye was reduced to light perception, while with the left eye he could perceive hand movements. There was a decided atrophy of both disks.

Neurological examination gave the following results: Gait normal, Romberg's sign present, Biernachi's sign present; knee-jerks normal; Achilles-tendon reflex was lost on both sides.

The cerebro-spinal fluid showed a lymphocytosis; Wassermann test was negative; therapeutic test positive.

The fact that binasal hemianopsia could not, in all probability, result from lesions at the lateral aspect of the chiasm, was emphasized by the writers, who also called attention to the infrequency of the symptom in hysteria and insular sclerosis.

Dr. Wm. T. Shoemaker spoke of the anatomy of the optic nerve, chiasm, and tract, and emphasized the now generally accepted belief that binasal hemianopsia, in the sense that the term hemianopsia was used by von Graefe, is physically and mechanically an impossibility.

The uncrossed fibers in the chiasm are at no point isolated, but are everywhere interspaced with the crossed fibers. In the tract the uncrossed fibers travel as an isolated bundle, but this bundle is situated in the centre of the tract, surrounded by fibers from elsewhere. In the intracranial portion of the optic nerve, a section about 1 cm. in length, they are placed as a ventral sector, and surrounded by very well-developed septa running in from the nerve sheath. This portion of the nerve forms a very favorable situation for an attack upon the uncrossed fibers alone.

Dr. Shoemaker thought that cases of this kind should not be referred to as having hemianopsia, but should be regarded as cases of optic atrophy, with the visual fields described accordingly.

In the presence of a suspicious specific history, Dr. Holloway inquired whether the reporters regarded the binasal hemianopsia as dependent upon a true tabetic atrophy or upon a syphilitic affection of another character. He was interested in the specimen exhibited by Dr. Price, showing a sclerotic patch in the chiasm, from a case of disseminated sclerosis where no field phenomena resulted, because Fuchs, at a recent meeting of the American Ophthalmological Society, had expressed the belief that the cases of bitemporal hemiopia observed by him were due to true tabetic degeneration affecting the decussating fibers in the chiasm. As to the infrequency of binasal hemianopsia, Dr. Holloway referred to a case that had been observed and studied at the University Hospital; this was not, however, a case of locomotor ataxia. He referred to the fields in a case of tabes in which bilateral scotomas were present, and to another case in which there had occurred a unilateral inferior hemianop-

sia, but he did not know of a case in which a binasal defect had been recorded.

Dr. Zentmayer said that he believed with Dr. Shoemaker that defects such as these fields revealed should not be termed hemianopsia, but rather pseudohemianopsia, or some term that would serve to distinguish them from true hemianopsia or symmetrical half-field defects due to a central lesion.

Dr. Heed stated that nothing new had been discovered, but the theory of a selective atrophy as suggested by Dr. Wm. T. Shoemaker seemed the most likely explanation for the present case.

Dr. Price, in closing the discussion, said that one other case of binasal hemianopsia occurring in the course of a tabetic atrophy had been reported by Lang and Beevor.

T. B. HOLLOWAY, M. D., Clerk.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

A meeting of this Section was held on Wednesday, 5th of February, under the presidency of Sir Anderson Crichtett.

Mr. G. Coats showed a case of congenital mesoblastic strand adhering to and penetrating the cornea. He suggested that if in early foetal life the amniotic fluid was not sufficiently developed, or was too scanty, the amnion might come into contact with eyes which were prominent at that time, and might acquire adhesion to the developing eye. Mr. A. Rugg Gunn showed a case of persistent hyaloid artery with massive white formation obscuring the optic disc. Mr. A. S. Cobbledick showed a case of congenital deformity of the inner canthus. Mr. J. B. Lawford exhibited a case of disease in the region of the pituitary body. He believed the lesion exerted pressure on the chiasma; the patient showed no definite evidence of acromegaly; he had loss of sexual power, and was very drowsy. Mr. R. W. Doyne alluded to the prognostic importance of ascertaining the colour fields beforehand. Dr. Grainger Stewart pointed out that the patient had the two other features associated with the condition to which Cushing drew attention, namely, general pallor, and a long distance between the ear and the corner of the eye. The President showed a case in which he had performed peritomy because of kerato-iritis, the whole of the vascular conjunctiva having been very much thickened. Mr. Bickerton (Liver-

pool), Mr. Cruise and Mr. Rayner Batten referred to the good results sometimes yielded by the operation, as in this case.

Resumed Discussion on the Physiology of Intraocular Pressure.

Mr. Martin Flack, in resuming the debate, criticized the scheme submitted to the last meeting by Professor Starling, as it did not take account of any capillary bed and the resistance due to it; thus the conditions obtaining in the eyeball were not adequately represented. Moreover, to hypothecate rubber and for the fluid, water, did not establish a parallelism with actual conditions. He proceeded to elaborate the argument which Dr. Leonard Hill submitted in his opening, and said that Dr. Hill's work on the circulation of the brain had never yet been proved to be wrong, although it was published a number of years ago. Admittedly the eye was not quite rigid, but it was sufficiently so for physiological purposes. When a skull was trephined, and the rigidity of the skull thereby modified, it did not interfere with the cerebral circulation. In Dr. Hill's and his own view, the tissue fluid was maintained not by any filtration pressure due to the *vis a tergo*, but to the pulsatile expansion and shrinkage of organs, and the expressive action of both intrinsic and extrinsic muscles, as well as by changes in posture, gravity, etc.

Mr. Thompson Henderson (Nottingham) declared that his views on the physiology of intraocular pressure were entirely dominated by the splendid work of Dr. Leonard Hill on the intracranial pressure. He, the speaker, maintained that the intraocular pressure was not a question of volume, but that it stood and varied with the intraocular venous pressure. Some of the views disregarded the fact that the vessels were embedded in a loose tissue stroma, which was in open communication with the angle of the anterior chamber. Therefore the ciliary epithelium could not act as a mere passive filtering membrane, because the pressure on both sides of it was the same, and if fluid did escape from the vessels it would make its way direct into the angle of the anterior chamber. He exhibited sections of eyes of different animals, and submitted that the anatomical conditions about the angle of the anterior chamber were such as to absolutely preclude any idea of filtration of aqueous. He had now a collection of 13,000 sections of eyes, mounted serially.

Mr. Herbert Parsons said he could not understand the antipathy to the filtration idea by Dr. Hill and his colleagues, who seemed to introduce a very difficult method of physico-chemical influence to account for processes which were explicable on simpler grounds. He could not see anything in the present discussion, so far, to cause him to modify the views he expressed in his work on the pathology of eye conditions, though perhaps one might have been a little more careful in the diction in which it was clothed, so as to obviate the criticisms which were sometimes directed unfairly against one's terminology. He proceeded to comment on weak points in Dr. Hill's experiments, and to argue that, the walls of the globe not being rigid, unless the animal were curarised in the experiments, there was enormous pressure exerted by the extrinsic muscles. He was the first to show that the increased pressure produced on stimulating the peripheral end of the cervical sympathetic was due to retraction of the unstriped muscle in the orbit. He did not think the consideration of the mode of production of accommodation was germane to the present discussion.

Mr. Rayner Batten demonstrated his views on intraocular pressure by a series of ordinary rubber child's balloons.

Mr. Greeves pointed out that Coster found, in his experiments, that there was a definite increase of volume when the intraocular pressure was raised, and he had himself done a similar experiment with fresh pigs' eyes.

Professor Starling and Dr. Leonard Hill then replied in detail on the whole debate, and were heartily thanked by the Section.

C. Devereux Marshall, F. R. C. S., 112 Harley street, W.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF JANUARY 7, 1913.

DR. WILLIAM ZENTMAYER, CHAIRMAN.

Sympathetic Optic Neuritis.

Dr. S. D. Risley presented a boy aged 7 years, who had received a blow from a fragment of wood on the left eye. He was seen on October 8th, 1912, because of failing vision in the injured eye, when the lens was found swollen and gray. There was some tenderness of the ball to palpation and slight ciliary injection. The right eye was healthy.

With the use of atropin locally the injection of the ball

rapidly subsided, but the lens became opaque throughout. On October 9th a discission was made and later soft lens substance evacuated. The operation was smooth and without unusual incident. A week later there were adhesions between the pupillary rim of the iris and the lens capsule, and the anterior chamber was deep, the iris being apparently drawn back by the synechiae.

In December the boy complained of seeing badly with the right eye, which was at first thought to be due to the refractive error (plus 2.50 cyl.ax.80 degrees) but after careful correction vision was found reduced to 6/xxx and the field of vision concentrically contracted to approximately 30 degrees at its widest part. The optic nerve was a gray red, slightly swollen and its margins veiled. There were no demonstrable macular changes and if scotoma were they were not recognized by the boy of seven years.

On December 20th a Muhle's operation was performed on the injured eye, care being exercised to remove every vestige of the uvea and a snugly fitting glass ball inserted. Convalescence was rapid and uneventful. The field of vision had markedly increased on January 2nd and was typical normal field on January 7th, 1913, and central vision with the correcting glass was 6/ix.

The optic neuritis had entirely disappeared, the fundus and nerve presenting the appearance of health. Dr. Risley presented the case as one of transferred or sympathetic optic neuritis, which had in his experience been very rare.

Dr. Zentmayer had seen two cases of sympathetic neuritis. The one following a gunshot wound of the fellow's eye. Here there was a very pronounced neuritis and the case ran a protracted course, but the result had been very good. In the second case there had been an extensive cut of the cornea with traumatic cataract. The neuritis was of a moderate degree but it ran a long course and terminated in full recovery. He thought Dr. Risley's patient was fortunate in the very rapid subsidence of the inflammation. It will be recalled that Dr. Thomas of New York reported two cases and reviewed the literature of this disease at the last meeting of the A. M. A. This analysis showed that the prognosis of this type of sympathetic inflammation was much more benign than where the uveal tract was involved.

Saemisch Incision.

Dr. P. N. K. Schwenk reported the following case in which he had performed the Saemisch incision. The patient, a stonemason aged 33, came to the Wills Hospital on November 21, 1912. About seven days previous to his visit to the clinic he was struck in the right eye by a flying piece of stone. An examination revealed an ulcer of the cornea with a large, partially organized hypopyon. The pupil was partially dilated. In spite of cauterization with carbolic acid the eye became gradually worse. On November 24, Dr. Schwenk did a Schwenk-Saemisch incision, with the result that on December 21st the patient was discharged, cured.

Intrauterine Uveitis.

Dr. William Campbell Posey showed a baby with congenital pseudo-glioma in one eye and coloboma of the iris with ophthalmoscopic signs of an old choroiditis with secondary atrophy of the optic nerve in the left eye. The conditions were present at birth, the eyes being free from signs of inflammation at that time. Dr. Posey attributed the condition to an inflammation of the mesoblastic tissues concerned in the formation of the embryonal eye, in consequence of syphilis in the mother. The condition of pseudo-glioma which existed in the right eye was, in his experience, unique.

The Complement Test and the Use of Salvarsan in Ophthalmology.

Dr. John L. Laird addressed the Society by invitation and called attention to the slight unreliability of the complement test as generally performed and the consequent use of only personal observation as a basis for the statistic report and estimation of value.

As syphilitic affections of the eye are merely manifestations of general syphilis, the value of the test in the diagnosis, therapeutics and prognosis of these conditions is the same as in general syphilis. A positive reaction means syphilis and a negative reaction, where the effects of treatment can be excluded, means no syphilis; the above conclusions being based on three years' work on 5,400 reactions on 3,000 cases. The possibility of the concomitant existence of general syphilis and pathologic conditions of a non-specific nature is mentioned.

Brief statistics cover 149 cases of various ophthalmologic conditions, in known syphilitics giving 96.2% of positive re-

actions: in known non-syphilitics 100% negative; and in suspected cases, 17.5% positive. The danger of too highly estimating the diagnostic value of the therapeutic test in ophthalmology was spoken of and reasons stated.

Attention was called to the important point in the treatment of syphilitic conditions of the eye that it should be that of general syphilis usually of the virulent type, and should be governed by the course, as shown by the complement fixation test and not by the local clinical manifestations. The therapeutic value of Salvarsan and Neosalvarsan is the same in syphilitic affections of the eye as in general syphilis. Most of these conditions respond rapidly. Certain severe forms of interstitial keratitis, however, are obstinate and require several injections before improvement is observed; all of these cases in the author's experience, whether hereditary or acquired, have been not only improved but cured, if sufficient treatment was administered. There are no ophthalmologic contra-indications to the use of Salvarsan or Neosalvarsan, and with general contra-indications absent, the most important of which is nephritis, Salvarsan or Neosalvarsan is by far the most effective remedy at our command in the treatment of syphilitic ophthalmologic conditions.

Dr. Posey said that while Salvarsan had rendered him undoubted service in the treatment of ocular affections due to acquired syphilis, his results from the use of this drug in interstitial keratitis due to inherited lues has been very discouraging, in some cases even aggravating the symptoms.

Dr. Zentmayer said that recently in going through the wards with a visitor and a colleague he had been asked: "Are the surgeons at Wills treating interstitial keratitis with Salvarsan?" He had replied that he was not, because no results had been obtained, and my colleague said he was not because that at the present time he had under his care two cases of optic nerve disease resulting from Salvarsan. It is to these two replies that Dr. Zentmayer wished to direct his remarks. In explanation of his own reply he wished to say, however, that he had had exceptions. At the present time he has at the Polyclinic Hospital the most severe case of interstitial keratitis that he has ever seen. The cornea was infiltrated throughout, was soft and slightly staphylomatous, and the vascularity was of the "epaulette" type. There was a strongly positive Wassermann. Inunctions and KI failing to arrest the progress of the inflamma-

tion, it was decided to try Salvarsan. After the first injections of .6 grains of neosalvarsan there was no improvement noted, but after the second, given one week later, the improvement was remarkable. At present the congestion and vascularity have entirely disappeared and the exudate is undergoing absorption.

The cause of the unsatisfactory results heretofore reported is probably the failure to repeat the injection. As to the occurrence of neuritis after salvarsan he believed that it is generally held that this is not due to the action of salvarsan upon the optic nerve but that it is syphilitic in nature and due to the increased activity of spirochetes so situated as not to come under action of the drug. If the salvarsan is repeated, it is said that the neuritis clears up.

Cerebro-Spinal Syphilis With Unusual Ocular Lesions.

Dr. Posey exhibited a man, the subject of cerebro-spinal syphilis, with complete bilateral ophthalmoplegia interna, and involvement of most of the extraocular muscles of both eyes. Both optic nerves were the seat of a secondary atrophy. Dr. Posey exhibited the case particularly to show the effects of tenotomy of the inferior oblique muscle of the left eye, a secondary contraction of this muscle, in consequence of a paralysis of both elevators of the right eye having occasioned marked postural changes in the muscles of the head and neck.

In speaking of the differential diagnosis between the ocular symptoms of tabes and cerebro-spinal syphilis, Dr. Posey stated the observation of Groenouw that the Argyll-Robertson pupil is generally indicative of tabes, and unilateral ophthalmoplegia interna of syphilis. Syphilitic palsies, as a rule, affect the entire nerve or a greater number of its branches, while a single muscle is involved in tabes. Dr. Posey said it had been his experience that inequalities in the size of the pupil and disturbance in its reaction are found in the early stages of cerebro-spinal syphilis often associated with optic neuritis, while palsies of the extraocular muscles, as a rule belong to the later stage. When syphilitic palsies do occur in the early stages, they develop more gradually and persist longer, tabetic palsies manifesting a tendency towards speedy disappearance and frequent recurrence. Conjugate deviations and ophthalmoplegia externa are caused almost exclusively by syphilis.

Dr. Posey exhibited a series of pictures which illustrated

the effect of tenotomy of the inferior oblique muscle in a series of cases where there had been an overaction of this muscle. He said the chief indication for the performance of the operation is the upward and inward tilting of the eye, which can be seen when the eyes are directed to the extreme right or left, when there is paresis of the right or left superior rectus muscle. The technique of the operation he said is simple; the tendon of the muscle being divided close to its origin at the lower inner angle of the orbit, by an incision which is made through the lid, somewhat lower, and more external, than that which is made for the removal of the lacrymal sac. The insertion of a strabismus hook through the wound, and the upward movement of the eye following traction upon the tissues, indicates that the tendon of the muscle has been caught. The division of the tissues on the hook follows. Healing had been prompt in all cases operated upon by Dr. Posey, and there had never been any complications.

Dr. John H. W. Rhein said that at Dr. Posey's request he had examined the patient at the Howard Hospital with the following results: There was no other cranial nerve involvement, outside of the eye conditions which Dr. Posey has described, with the exception of a weakness of the facial muscles around the mouth on the left side. The sensation all over the body was intact. There was a distinct Romberg and the gait was ataxic. The knee jerks were absent and not reinforcible. There was a Babinski phenomenon on the right side. He has had for the last year besides sharp shooting pains, incontinence of urine. The ataxia began two years ago. At first sight this case appears to be one of tabes. The permanent ocular palsies dating four years before the onset of the ataxia is unusual, however, in tabes the usual form of ocular palsy being of a transient character. It may be said, however, that while a complete ophthalmoplegia is unusual, it is in rare instances present in tabes. The incontinence of urine is another symptom which is present in tabes, but it is usually a late symptom. It will be remembered that in this case the incontinence of urine made its appearance one year after the onset of the ataxia, and has been persistent ever since. The presence of the Babinski phenomenon, incontinence of urine and the persistent ocular palsies dating four year before the spinal symptoms all pointed to a diagnosis of pseudo-tabes, which as is known, is of syphilitic origin. The syphilitic infiltration of the meninges attacks the

posterior roots and causes an ascending degeneration in the posterior columns. There is also an involvement of the other tracts of the cord from extension of this infiltration, and of the cranial nerves at the base of the brain.

Tinted Glasses for Optical Purposes.

Dr. J. C. Attix addressed the society by invitation on the results of experiments he had performed to determine the effects of cutting out or rendering less irritating certain rays of light. These experiments were begun in 1901 from observing cases of marked irritation and photophobia in workers who were engaged around blast furnaces where electric arcs of exceeding brilliancy were used for melting iron, from a similar method used for drilling armor plate, and from electricians operating switches where a short circuit was made and so-called flashes resulted. That ultra violet rays are present in sunlight and artificial light also is no new knowledge.

The actinic rays are capable of performing certain chemical changes which other rays will not. There seems to be no division of opinion that these actinic or chemically active rays will produce the irritation that is often observed in those working under artificial light of great intensity, or in individuals whose eyes are particularly sensitive even to ordinary light. Dr. Attix found from experiments with different colored glass, using ordinary colorless, blue, red, green, amber, purple and violet, we find that violet is the most opaque to irritating rays, if as we believe the actinic rays are the most active and irritating as well, and next to this is purple. It would seem that the purple and violet, being more or less complimentary of yellow, they would have this property more or less pronounced. That any kind of color of glass will cut out some of the irritating rays no one denies, but it would seem from our experiments that violet will cut out more of these than any other shade or color.

Dr. Posey congratulated Dr. Attix upon the merit of his paper which was upon a subject now engrossing the attention of the scientific world. All had doubtless encountered cases in their practice of so-called sunburn of the eyes, and recognized the futility of attacking such forms of conjunctivitis by ordinary measures. Dr. Attix's statement that he had entirely relieved such an inflammation of the conjunctiva by a tinted glass was of great clinical interest. Dr. Posey recounted some of the dangers to the eye of excessive light and gave the details of a case of cataract which he had recently successfully operated

upon, where the lenticular capacity had been caused by a blinding flash in consequence of the short circuiting of an electric light. He recalled Louis Bell's experiments as a result of which that scientist had concluded that amber tinted glasses afforded the best protection to the eyes from injurious ultra-violet rays. Dr. Posey said that his own experience had taught him that the best protection which could be afforded the eyes from excessive light was the diminution in its intensity through the medium of London smoke glasses. He doubted if there was scientific proof as yet to confirm clinical observations that certain tints of glass which altered the spectral quality of light had any real beneficial effect upon the eyes.

He could not conceive why lenses which had their color changed by the effect of direct sunlight should necessarily be a protection to the eye.

Dr. Schwenk stated that the color of a glass must be in direct ratio to the amount of retinal irritation. He agreed with Dr. Posey that color diminishes the visual acuity. The color that has afforded the greatest relief in his experience is the Fieuzal tinted glasses. Dr. Schwenk himself was relieved of a central scotoma caused by looking into electric lights, by the use of this glass.

Dr. McCluney Radcliffe spoke of his favorable experience with amethyst glasses in cases of hyperaesthesia of the retina, and with those who worked on bright colored substances such as seamstresses, engravers and gold beaters. He said that a number of his patients had used them with perfect comfort at the seashore, and in traveling, instead of the disfiguring smoked glasses.

They soften the light but do not darken objects, and are scarcely distinguishable from ordinary glasses except when seen on the edges.

J. MILTON GRISCOM, M. D., Secretary.

TRANSACTIONS OF THE PHILADELPHIA POLY-CLINIC OPHTHALMIC SOCIETY.

JANUARY 9, 1913.

DR. WENDELL REBER IN THE CHAIR.

Exhibition of Cases.

Dr. William Campbell Posey showed a man from whom he had recently removed a large sarcoma from the orbit with preservation of the globe. Although it had been necessary to

enlarge the incision proposed by Krönlein by a horizontal one which extended below the superciliary ridge and parallel to the supraorbital margin to permit the removal of the growth, the deformity was exceedingly slight, the lines of incision being barely visible.

A Tansley-Hunt operation had been performed some months after the Krönlein procedure to relieve the ptosis occasioned by the loss in function in the levator consequent upon the division of the nerve supply. Full details of the clinical history and the pathological report would be given later.

Dr. Reber called attention to the excellent motility of the globe and the splendid position of the eyeball and stated that it was the most perfect result after a Krönlein operation that he had ever seen. One really had to hunt for the scar left by the temporamalar incision.

Dr. Reber exhibited a case of a young colored woman, 18 years of age, with a violent bilateral uveitis anterior, reducing vision to about 1/60 in each eye. She had lived to the flesh with all her might and main: result a strongly positive Wassermann reaction.

The left eye had shown a very small scleral staphyloma from 2 to 3 mm. in diameter just back of the upper outer limbus but it had subsided promptly on treatment. The right eye then began to develop tension with great supraorbital pain and narrowing of the anterior chamber. This became so marked that a paracentesis was done with consequent prompt reduction of the tension, but after a few days a scleral staphyloma began to bulge forward at the lower limbus and in spite of all medical treatment continued to increase in size until it was larger than the cornea itself. During all this time the tension remained about minus one and the patient was absolutely free from pain. The patient was seen in consultation with three or four colleagues, all of whom inclined to the diagnosis of gunnma and two of them were quite convinced that enucleation would become absolutely necessary. Neo-Salvarsan and mercurial injections had been used for about two weeks without any benefit. At this juncture the eye was thoroughly cocaineized and 3 drops of absolute alcohol (95%) were introduced directly into the substance of the ectasia by means of a hypodermic needle. Within five days the ectasia was hardly in evidence and within ten days there was nothing to mark the site of the previous extensive staphyloma other than a broad pigmented line along

the lower limbus. Dr. Reber speculated upon the possible conditions that existed within the ectasia, rejected the idea of gumma and thought it might have been a cystic condition.

Dr. Posey in discussing the question also rejected the idea of gumma, although he saw objections in the way of assuming that the condition was a cystic one.

The Use of Bifocal Glasses in the Orthoptic Treatment of Strabismus in Children.

Dr. Reber discussed the various theories for the genesis of convergent strabismus in little children, saying that he was convinced that the usual clinical picture was that of a weak or even entirely absent fusion sense complicated by a more or less unequal refractive error. With a weak fusion sense the accommodative apparatus of the eye easily falls into vicious habits. The correction of these vicious states of the accommodative apparatus have been made up to the present time, by the use of practically full correction and the continuance of atropia in one or both eyes for one to three months after the glasses were put on. Two years ago he had come to the conclusion that it could do no harm to carry this idea to its logical sequence. He therefore not only ordered a full correction for infinity but to this added plus 2 to 3 D. to be made up in an invisible bifocal glass, thus setting aside practically all accommodative effort in the eyes of these little subjects, whose accommodation is so abnormally spastic. The combination of bifocal glasses and atropia in both eyes for two to three months is the most complete orthoptic method for the abolition of accommodative spasm, with its associated over convergence.

The first of such glasses ordered were made up in lenticular bifocals but they excited so much comment when worn by a 4 year old child and subjected the parents to such unceasing questions from every interested person that the glasses were made up in an invisible bifocal. Bifocal glasses have been tried in this way in 8 cases of seemingly pure functional strabismus. That is to say no congenital features present in any of the cases.

Dr. Reber has been much impressed by the excellent results achieved in these 8 cases and thinks they are superior to those secured by the methods at present in vogue. One objection is that the little patients at once try to dodge the bifocal and for the first week bob their heads about a good bit but they soon learn to adjust themselves and the bifocal's good effect upon

the deviation seems to follow soon after. He feels that the method is well worth a trial.

DISCUSSION. Dr. Posey expressed his appreciation of the value of Dr. Reber's suggestion, and said that as Dr. Reber claimed, the removal of the accommodative effort by the superposition of additional spherical strength in the bifocal slips, was quite in line with the teachings of Donders and should tend to establish as far as was possible the normal relationship between accommodation and convergence which was necessary for straight visual axes. The only objection he had to offer was the difficulty there might be in adjusting the slips to the squinting eyes. Dr. Posey was averse to glassing children younger than three years of age and decried the practice of some of tying the spectacles on the heads of infants with tapes, upon account of the danger of the pressure exerted by the glasses upon the root of the nose altering the formation of the lines of the face and interfering with the proper development of the orbit. He insisted upon the early differentiation of cases of congenital squint from those under discussion. He doubted if in cases of concomitant squint, vision sank as rapidly in the squinting eye as Worth has averred.

Dr. Zentmayer said that believing as he does in the correctness of the theory of Donder as to the cause of esotropia he considered Dr. Reber's method rational but not generally practicable in young children. Exactly the same thing has been recommended for esophoria, that is, to diminish the accommodative effort at near-work by the addition to the distance glass of a plus 2 or 3 D. lens to be worn for near-work.

Dr. Pfeiffer said he had little confidence in Worth's method. Experience had shown him that it required very intelligent parents to permit following out similar plans to Dr. Reber's on children. He thought that with a lower segment, no matter how it was shaped, there attended an effort on the child's part to look around the edge to escape the more powerful glass.

Dr. Reber in closing: "There is no question, as I pointed out in my opening remarks, but that these little patients have difficulty the first week or ten days in getting used to the bifocal glass. In no one of the cases has the discomfort extended beyond this time. The influence of the fusion faculty on the genesis of strabismus in little children cannot be lightly re-

garded. It is perfectly true as Dr. Zentmayer says, that the use of a plus 2 to 3 over the infinity correction has been in vogue for some years. In the first edition of Hansell and Reber on the 'Muscular Anomalies of the Eye' (1896), this method of the treatment of esophoria was gone into at some length and during these 17 years we have resorted to the method in a goodly number of cases with gratifying results. Indeed it was the success of these cases which led us to apply the above mentioned method in strabismus of little children. If the object of the orthoptic treatment of strabismus is to break up the vicious accommodative habits into which the visual apparatus has fallen we believe this will prove to be a contribution to the orthoptic treatment of squint."

The Treatment of Dendriform Ulcer of the Cornea.

Dr. William Campbell Posey spoke of the various types of superficial inflammation of the cornea which were associated with dendriform opacities, and referred to the infrequency of dendriform ulcer in women. He had recently had under his care a number of young men with dendriform opacities, in whom a persistent conjunctivitis apparently played an important part. In the treatment he thought that at first all irritation should be avoided, cauterization of the cornea being only resorted to when the opacity showed a tendency to spread and to resist milder measures. He preferred carbolic acid to other drugs, care being taken to limit the application of the crude acid to the part affected.

Subsequent applications of an ointment containing atropin, iodoform and vaseline relieved pain and promoted healing. He had found holocaine of little value in the treatment of this affection.

DISCUSSION. Dr. Zentmayer said there is a wider acceptance of the view that dendritic ulcer herpes cornealis, superficial punctate keratitis and allied superficial forms of keratitis are of neuropathic origin than formerly but he did not consider the evidence sufficient to include all within this etiology. As to the treatment, his attention to the value of holocain in these conditions was called some years ago by de Schweinitz's memorandum of the value of this drug in relapsing erosions of the cornea and he has since used it in all corneal conditions and he thinks with decided advantage combining a compress bandage in some forms. Finding that oil of turpentine next to the

solid stick of nitrate of silver was the most efficient treatment for aphthous stomatitis he was led to use it in corneal ulcers and it seems to be of special value in dendriform ulcers. He recalled that in a very pronounced case of filamentous keratitis which had resisted all forms of treatment he had at the suggestion of Dr. Posey employed a strong yellow oxide ointment with benefit.

Dr. Sweet advocated the use of holocain and drew particular attention to the way in which holocain solutions seemed to vary, not only in their anesthetic properties but in their irritative properties. In his hands some solutions had seemed to be so much more irritating than the average solution that he was led to speculate on whether the chemical itself always came into the market in the same condition.

Dr. Reber also endorsed holocain and was not persuaded that malaria occupied the prominent place in the etiology of this disorder that was once ascribed to it. Anything which induced a neurotrophic state might well be the cause of the dendriform ulcer of the cornea. In this sense a neighboring dental or nasal disorder might easily prove to be the existing factor.

W. WALTER WATSON, Secretary.

NEWS ITEMS

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Building, State and Madison Streets, Chicago, Ill.

Dr. Frederick Frisch, who is associated with Dr. J. C. Me Vay of Atlantic City, N. J., in the practice of ophthalmology, sailed recently for Europe. Dr. Frisch will attend the German Eye Clinics for some months before returning to Atlantic City.

Dr. Harry Vanderbilt Würdemann announces the dissolution of the firm of Würdemann and MacWhinnie. Dr. Würdemann is now located in Suites 711-714, Cobb Building, corner 4th Avenue and University Street, Seattle, Wash.

At the recent conference of the American Medical Association on Medical Education, Legislation and Public Health, held in Chicago, a paper was presented by Dr. Mark W. Richardson, Secretary State Board of Health, Boston, entitled, "Control of Ophthalmia Neonatorum in Massachusetts."

A new society, known as the Louisville Eye, Ear, Nose and Throat Society, has just been organized in Louisville, Ky. Dr. Adolph Pfingsst of Louisville, who has been very active in promoting the society organization, was elected president; Dr. W. J. Leach of New Albany, Ohio, vice-president; Dr. Roy Peabody of Louisville, secretary-treasurer.

A joint meeting of engineers, architects and ophthalmologists was held in Milwaukee, February 22nd last. Members of the different professions from Chicago were represented. Dr. Nelson M. Black of Milwaukee in association with F. A. Vaughn, presented a paper on "Discussion of Ocular Comfort and Its Relation to Glare from Reflecting Surfaces."

The 1913 meeting of the Heidelberger Ophthalmologische

Gesellschaft will be held in Heidelberg, Germany, on the 15th, 16th and 17th of May. Manuscripts and demonstrations must be in the hands of the secretary by April 3rd. The secretary particularly wishes members to notify him of any change of address. Prof. A. Wagenmann, Heidelberg, Secretary.

LOS ANGELES LAD MUST REPLACE THE SIGHT ORGAN HE DESTROYED.

Los Angeles, Cal., Jan. 18.—The biblical injunction of "an eye for an eye" was applied in an unique manner by Judge Curtis D. Wilbur in the juvenile court yesterday when he sentenced Benedite Colora, 8 years old, to purchase a glass eye for Luis Garcia, three years his senior. Benedite was arrested for destroying one of Luis' eyes with an air gun.—By The Associated Press.

THE CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

FOURTH ANNUAL SESSION, CHICAGO, NOVEMBER 10 TO 15, 1913.

The Fourth Annual Clinical Congress of the Surgeons of North America will meet in Chicago November 10 to 15, 1913, when a large attendance is expected.

Dr. Casey Wood is chairman of the Eye, Ear, Nose and Throat Section; Dr. W. H. Wilder being chairman of the Eye Sub-Section; Dr. Norval Pierce of the Ear Sub-Section and Dr. Frederick Menge of the Nose and Throat Sub-Section.

The main features of the meeting are the all-day operative clinics in the various Chicago hospitals, and evening addresses on surgical subjects by prominent surgeons of Europe and America. The names of those accepting invitations to give the evening addresses in the Eye, Ear, Nose and Throat Section will later be published.

The general officers of the Congress are:

President—Edward Martin, M. D., Philadelphia.

President-Elect—George E. Brewer, M. D., New York City.

Vice-President—W. W. Chipman, M. D., Montreal.

General Secretary—Franklin H. Martin, M. D., Chicago.

Chairman Committee on Arrangements—E. Wyllys Andrews, M. D., Chicago.

Treasurer—Allen B. Kanavel, M. D., Chicago.

General Manager—A. D. Ballou, Chicago.

XII INTERNATIONAL CONGRESS OF OPHTHALMOLOGY.

ST. PETERSBURG, AUGUST 10TH TO 15TH, 1913.

RULES FOR THE CONGRESS.

1. The Congress will last from Monday August 10 (July 28) till Saturday the 15 (2) of August, divided as follows; four sessions in the morning for discussions and one in the afternoon reserved for demonstrations.

2. Members who want to communicate reports to the Congress are obliged to send off the manuscript with the inscription fee to the central bureau in St. Petersburg, Ophthalmic Hospital, Mochowaja 38 to the general Secretary Dr. *Th. Germann* not later than the 1st of February, 1914. The reports must be written in one of the official languages of the Congress: in English, French, German, Italian, Spanish or Russian: the extension of each work must not pass over 5 pages, the usual length of reports on the preceding congresses. The manuscript must be type written.

3. The first part of the Congress' reports will contain Referats and Correferats treating of the official subjects and the works which will arrive at the indicated time and in the progressive order of receiving of dates in the central bureau. Official subjects chosen by the preceding Congress in Naples:

)A Aetiologie of the trachome.

b) The nutrition of the eye.

The first part of the Congress' reports will be sent off before the beginning of the Congress to those who will communicate in time their participation and pay their share.

The second part will be sent off after the Congress; it will contain the protocols of discussions of the demonstration session and the presence-list.

4. Firstly one will discuss the works already published in the first part of the reports of the Congress. Communications that came too late can be discussed in case, when the bureau of presidency proposes it and the majority of the Congress members sanction it. Communications that came in during the Congress and have not been discussed can not be printed in the reports of the Congress.

5. The protocols of discussion will be recapitulated in conformity with reviews presented by the authors and by the secretaries of the session.

6. During the session of demonstrations one can show the apparatus, instruments and mechanisms, etc.

7. The Congress will proceed in the first session to the nomination of the definitive bureau of presidency, that will direct the works and the session and will fix the order of the day for the sessions.

8. To each member of Congress, who will have obtained from the president the right of speaking, 5 minutes only will be granted to speak once on the same subject during the present session except that the consulted assembly decides otherwise.

9. The members of Congress vote by sitting down or rising for the proposed deliberations.

10. The charges for plates and figures united with the works are at the expense of the authors.

11. The presidency of the Congress will decide definitely on all incidents not fore-seen in the above rules.

12. The inscription fee of the Congress is 25 francs for the members of the Congress and 10 francs for each member of their family. The participations and communications concerning the Congress must be sent to the central bureau St. Petersburg, Ophthalmic Hospital, Mochowaja 38, to the secretary Dr. *Th. Germann*.

The card of admittance which the members of the Congress will receive will be personal. A later notification will indicate what rights and advantages this card will give; entrance into museums, reduced railway fares and other facilities during the sojourn.

The corresponding members of the United States who will be glad to answer correspondents are as follows:

Dr. A. Knapp, New York.

Dr. Edmond Blauw, Buffalo.

Prof. G. E. de Schweinitz, Philadelphia.

Prof. Adolph Barkan, San Francisco.

Dr. W. H. Luedde, St. Louis.

Dr. Juan Santos Fernandez, Habana, Cuba.

NOTICE.

Dr. Thomas Hall Shastid of Marion, Illinois, is engaged in writing for the *American Encyclopedia and Dictionary of Ophthalmology* biographies of deceased ophthalmologists. He is making an appeal to confreres everywhere to aid him in this important work. He particularly desires the following information so that the work may be as complete as possible. Will the reader kindly assist Dr. Shastid by giving him an account of the lives of confreres who have passed away in his neighborhood?

1. Name in full of deceased confrere.
2. Birth-date and death-date.
3. Manner of death.
4. Place of practice, or residence, at time of death.
5. Physical description. (Large or small, thin or fleshy, blue-eyed, etc.)
6. Customary manner. (Quick or deliberate, gay or sedate, etc.)
7. Favorite recreations.
8. Anecdotes illustrative of mind or character. (Especially desirable.)
9. Name and address of person likely to furnish further information. (Answer to this question by no means to bar answer to the others.)

10. Name and address of confrere sending information.

As will easily be inferred from these questions, the dominant idea is to secure for all the sketches material possessed of "human interest." (Please do not cite well-known sources of information, like Stone, Atkinson, Kelly, and the various reports and journals.)

BOOK NOTICE.

Eye-Strain in Everyday Practice. By Sydney Stephenson, M. B., C. M. Edin., D. O. Oxon, F. R. C. S. Edin., Ophthalmic Surgeon to the Queen's Hospital for Children, London. Editor of the *Ophthalmoscope*. Price 3s 6d net. London: The Ophthalmoscope Press, 24-26, Thayer Street, W., 1913.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.) G. W. Mahoney (P.-G.)	*Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.) Brown Pussey, N. W. U. Every day, 10-12 A.M.	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	W. Woodruff (E. E. N. T.)	A. G. Wipperrn (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wipperrn (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipperrn (E. E. N. T.)
1 P.M.	.....	Willis O. Nance (C.C.S.)	.....	Willis O. Nance (C.C.S.)	.....	Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) M. H. Lebensohn (P. & S.) S. L. McCright (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) Paul Guilford (St. Luke's) Casey Wood (St. Luke's) T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCright (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Frank Alport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) Wm. E. Gamble (Inf.) E. J. Gardner (E. E. N. T.) Paul Guilford (St. Luke's) Casey Wood (St. Luke's) T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCright (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) Paul Guilford (St. Luke's) Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCright (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	.....	W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pussey (County)	.....

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street. E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets. Clinics all day.	County: Cook County Hospital, W. Harrison and Honore Streets. Ills. Med.: Illinois Medical College, 182 Washington Blvd. Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	Poli.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue. P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street. N. W. U.: Northwestern University, 2431 Dearborn Street.	Rush: Rush Medical College, W. Harrison and Wood Streets. St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
--	--	--	--

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXII

CHICAGO, APRIL, 1913

No. 4, New Series

ORIGINAL ARTICLES

THE NEEDS OF THE EYE, EAR, NOSE AND THROAT SURGEON IN GENERAL HOSPITALS.*

BY

FRANK ALLPORT, M. D.

CHICAGO, ILL.

All eye, ear, nose and throat specialists are well aware of the difficulties to be encountered in endeavoring to do their work in general hospitals.†

We visit such institutions as the New York Eye and Ear Infirmary, the Massachusetts Eye and Ear Infirmary, etc., and we envy those surgeons who seem so easily to dispose of their work. In these institutions we find permanent operating room nurses and internes who serve long terms and who become familiar with their duties. We find good instruments, solutions, lights, wards, etc., all arranged for the convenience of the surgeons and for the benefit of the patients. The surgeon is thus enabled to give his entire time and attention to his work, his operations and his service, which, of course, results in a quiet undistracted mind, better scientific thought, and a higher percentage of good results. The work proceeds easily and comfortably, accompanied with only a minimum amount of confusion and irritation, and with all equipments and apparatus for ordinary and extraordinary occasions. To work in such institutions is a privilege and a pleasure, and it is an incontestable fact that, whatever may be the cause, whether it resides in the men themselves, or in their atmosphere and surroundings, or whether it is the combined influence of both, men who work in such institutions, as a rule, stand at the head of their profession and become recognized leaders and teachers.

†For purposes of convenience in writing, such specialists will, hereafter in this article, be usually designated as "Oculists and Aurists or Surgeons," although I include under this one title men who do all kinds of eye, ear, nose and throat work.

*Read before the Chicago Laryngological and Otological Society, Jan. 21, 1913.

In sharp contrast with these almost ideal working conditions, let us picture the difficulties encountered by the eye and ear surgeon in endeavoring to perform his duties amid the bewildering surroundings of a general hospital. It is not too much to say that he works in an alien atmosphere from beginning to end—in which he is constantly compelled to fight for his own rights and for the rights of his patients. Everybody is interested in surgery, in general medicine, in obstetrics, etc., but hardly anybody is interested in ophthalmology and otology. This is true of the superintendent, of the head nurse, of the internes and of the operating room nurses and other nurses. A general hospital interne, who takes any particular interest in ophthalmology and otology, and who intends to make this his life work, is a species of interne that seldom I see. The consequence is that this service is an undesired one, and barren of interest to the interne, who therefore gets through with it as quickly and easily as possible. Such unwilling and perfunctory assistance is entirely unsatisfactory to the oculist, who learns to depend less and less upon it, until, through force of circumstances, he pays but little attention to the interne, and learns to do practically all his important work himself; or, if he has an assistant in his office, he avails himself of this assistance, not only in his office work, but in his hospital work as well. The assistant accompanies him in his hospital rounds, makes independent calls, dresses patients, assists at operations, etc., etc., and in fact, almost usurps the function of the interne, an improper situation, which has been largely and gradually evolved by the conduct of the average hospital interne himself. Such conditions occasionally precipitate unfavorable criticism from the medical staff, and from the internes themselves; the former, feeling that proper discipline is not being maintained, and the latter feeling that they are being ignored and their places supplanted by interfering usurpers. The surgeon is sometimes called upon to defend himself under such conditions, and he is reminded that hospitals are training schools for doctors, and that the internes are giving their services to the hospital in exchange for experience, and that therefore it is their right to receive from each attending medical man all the instruction that the material affords. Such protests are not frequent, however, for, as a rule, the average interne is only too glad to shirk the eye and ear service; still such protests do occasionally occur, and when they occur a defense is necessary.

I have already given some reasons why the services of the average hospital interne is unsatisfactory to the eye and ear surgeon; but in addition I desire to say that our specialty is quite unlike any other specialty, and requires special training, experience, adaptability and delicacy of touch and manipulation. I have seen eyes ruined after operation, by willing, but untrained and clumsy internes, and a few experiences of this kind are not conducive to the fostering of ideas concerning the desirability of training green and transient internes at the expense of human eyes. An interne may be quite capable of dressing ordinary wounds, and of doing ordinary hospital, surgical and medical service, and yet be quite incapable of dressing eyes after cataract or other operations, or of dropping medicine into the eye without inflicting pain and injury, or of dressing a head after a radical mastoid operation, without defeating the purpose of the operation. Oculists and aurists therefore, frequently form the habit of devising methods by which they can at least measurably, dispense with the services of the interne, either by doing the work themselves, or by deputizing it to their office assistants. Even when (as occasionally happens) an interne appears who seems to take a real interest in this department, the surgeon's general line of conduct has become so well-defined that it hardly seems worth while to change it for the brief space of one interne's service in this particular department.

And this brings us to a consideration of the great undesirability of short interne services in general hospitals. It is a fact that no intelligent surgeon will dispute, that the usual short term of interne service in a given department is not conducive to good work and is irritating and unsatisfactory to all concerned, for no sooner does an interne begin to wear off the newness and become really useful, when he is transferred to another department, and a new man presents himself to be initiated into the mysteries of the department. This difficulty is overcome in some hospitals by allowing internes to serve only in a limited number of departments during their months of duty. This plan seems to be quite satisfactory where it has been tried, but I believe that some better method will be devised by those who are giving special thought to the subject. Certain it is, that until eye and ear surgeons can command the services of internes for many months of continuous service.

these young doctors, however willing and earnest they may be, cannot be of any great utility to this department. At the present time, and under existing conditions, hospital superintendents, and internes, superintendents of nurses and nurses, seem to think that the main object of hospital work is to educate internes and nurses. My own opinion as to the use of hospitals is, that they exist for the purpose of benefiting the sick, and for the convenience of physicians, and *incidentally* for the education of internes and nurses.

And this leads naturally to the subject as to how the eye and ear department in a general hospital can best utilize the services of the general hospital nurse. When it comes to being of any real assistance to the surgeon in his hospital work, the general hospital nurse is nearly a hopeless proposition. This is not an ill-natured criticism, it is simply a statement of an unfortunate fact; neither is it a reflection upon the nurse, or her intelligence or willingness, as this statement is only possible because of circumstances and conditions over which the nurse has no control, viz., the constant changing of her location and occupation from ward to ward and from service to service. Between educating new nurses and new internes, and patiently enduring their mistakes and shortcomings, the path of the attending oculist and aurist in a general hospital is certainly not strewn with roses. I wish to again emphasize the fact that I am not blaming these young people, indeed, I am not blaming anybody—I am simply endeavoring to present my subject truthfully, for the purpose of ultimately producing better conditions.

The oculist and aurist in a general hospital has his patients scattered from ward to ward and from room to room. As he progresses from place to place he is constantly confronted with a new nurse and with new conditions. If an interne goes with him, he may carry a tray of drugs, instruments, appliances, etc., for whose reliability as to cleanliness, aseptic qualities, etc., no one can vouch, as it is no one's duty in particular to guard the dependability of these articles. He is, therefore, constantly in fear of using impure solutions, dirty droppers, infected ointments, etc. Sometimes each ward or room contains the particular articles he intends using on the patients in that particular locality; but here again he is confronted with the same fear of contamination that is in evi-

dence when he is using solutions, etc., from a migrating tray whose reliability is more than doubtful, and he is almost certain to want something, such as a solution, a light, a probe, an ophthalmoscope, etc., that is not at hand and that takes much time and confusion to secure. And so he proceeds from one portion of the hospital to the other, changing nurses from place to place, encountering fresh obstacles and annoyances as he continues in his calls, dressings, etc., until he emerges from the hospital tired and dissatisfied with his work and the conditions under which he is obliged to prosecute his labors. Besides this the proper fulfillment of the surgeon's orders in the interim between his visits, in a general hospital, is a practicable impossibility. The ever-changing ward nurse is quite incompetent to instill drops into the eye, or to irrigate an eye, or to put ointment into the eye, or to change bandages, or to irrigate or dress an ear, etc., etc. And as these things cannot be done properly during the surgeon's absence, he either dispenses with such necessary attentions altogether, or has them performed as infrequently as possible, in order to guard against the occurrence of damage occasioned by an inexperienced and therefore incompetent not to say dangerous nurse.

The operating room conditions for the oculist and aurist in the general hospital are thoroughly unsatisfactory. The head operating-room nurse is by no means a fixture in most hospitals, and her time is usually absorbed in laparatomies, amputations, etc., so that when the eye and ear surgeon desires to operate, he is usually assigned to one of the assistant nurses. There are several of these endeavoring to obtain operating-room experience, so that it may easily happen that the surgeon may be assisted by an ever-changing new nurse in his operations from day to day. He is thus irritated and annoyed, and therefore more or less incapacitated from doing the best work, by being constantly obliged to coach the nurse in her duties, and by using poor knives, scissors, sutures, etc., that are out of order, owing to the lack of proper inspection. In fact, the general hospital operating-room nurse has no conception of the instrumental necessities of instruments for the proper performance of ophthalmic surgery. Her ideas of surgical instruments are based upon those required to do large surgical work, and the necessities of a cataract or iridectomy knife, or a pair of de Wecker scissors, or a proper needle, are apparently beyond her

conception. She drops cataract knives into a tray, with perfect unconcern, and allows them to collide with the sides of the tray, without any conception of the delicacy of the knife, or with the fact that it should not be used at all if its point is not perfectly true. Nor does it do any good to instruct her for she may be gone from her operative experiences tomorrow, and a new face, with all of its discouraging possibilities may confront the surgeon. These are some of the difficulties that constantly confront the oculist and aurist who endeavors to do his work in a general hospital. I have not completely covered the ground by any means, but I have perhaps said enough to afford an insight into the subject. Again I wish to disclaim any intention of critical indulgence upon hospitals, internes or nurses; they are merely the natural products of misconceptions.

Eye and ear work was the first to become isolated and it still is the most clearly defined of all the specialties. Almost all general physicians and surgeons refuse to do any appreciable amount of eye and ear work. They frankly admit their ignorance, and do not care to overcome it. This idea prevails amongst internes and nurses, who consequently take but little interest in this clearly defined and isolated specialty, which is, therefore, neglected as much as possible during their hospital service.

Having thus, at least to a degree, called attention to certain unfortunate conditions interfering with desirable eye, ear, nose and throat work in general hospitals, let us endeavor to see if something cannot be done to remedy such conditions.

Concerning the interne situation, I have the following plan to suggest: What is needed is a long service of perhaps one year. Of course, it would not be possible to dictatorially appoint staff men to a year's service of this nature, without first gaining their consent; but if it was known that a certain hospital had a large eye, ear, nose and throat service, to which men desiring such work could be assigned for a year or more, I am inclined to believe that the position would be kept constantly filled. It should probably best be understood that while such internes would consider their eye, ear, nose and throat service to be of primary importance, yet they would be expected to work in other departments if their time was not fully occupied. This would probably be an additional incentive to secure the position, for most young doctors are anxious to round out

their education, and to secure as much general knowledge and experience as possible. Eye, ear, nose and throat hospitals are comparatively few in number, and there are many young men desirous of special hospital training, who are unable to secure an internship in such special hospitals who would eagerly grasp at a prolonged special service in a high-grade general hospital. Such hospitals could, if thought desirable, issue a special certificate to those men who have served a year or longer in this department. I believe this plan is feasible and practicable, and could be successfully carried out in hospitals having a sufficiently large service to be a temptation to the embryo specialist.

This plan as just depicted, is now being carried out in St. Luke's Hospital in this city. Sometime ago Mr. Curtis, the superintendent, told us that if we desired it and he could find a suitable man, we could have our own exclusive and continuous interne. Some pessimists believed a man could not be found who would be willing to give up a year's time to what eye, ear, nose and throat experience he could secure in a general hospital, but with remarkable promptness Mr. Curtis had about fifty applications for the position, from which he selected a man who is now the special eye, ear, nose and throat interne of St. Luke's Hospital. He will always have one or two junior internes working under him, who will change their service once in two months. The chief interne will have complete charge of the indoor and outdoor eye, ear, nose and throat service in the hospital, and at the end of his year's service he will be given a proper certificate. He will be present at all operations, and will himself do all the operating it is possible to entrust in his hands. It should be clearly understood that this interne is the eye, ear, nose and throat interne for the entire service, and that his services are just as much at the disposal of specialists that are not on the staff, as they are for staff members. There is no salary connected with the position, but the interne is supplied with his living expenses. He is at liberty to do all the pathological work in the laboratory he desires, and we hope soon to have a special paid eye, ear, nose and throat pathologist at St. Luke's, as we all recognize that the average general pathologist is not qualified to perform satisfactory pathological work in our department.

Concerning the nurse situation, I believe we have at St. Luke's Hospital gone a long distance in solving this vexed prob-

lem. Some years ago, recognizing the necessity for better service, we secured through the cordial co-operation of the superintendent, Mr. Curtis, and the head of the training school, Miss Johnston, a nurse who was assigned especially to our department. She was an undergraduate and her term of service was for three months. Her first duty was to us and to our patients, but if her time was not fully occupied she could be assigned to other work. She kept the eye and ear trays stocked with fresh dependable solutions, ointments, droppers, instruments, pads, bandages, cotton, etc., etc., and always made the round of calls with the surgeons. She dressed and treated the patients between visits, kept the operating room instruments in order, and was always present at operations to be of all possible assistance, although she did not supplant the function of the operating room nurse. Just before her term of service expired another nurse was appointed to take her place, and for several days she instructed the new nurse in her duties, so that the break in service would be as little apparent to the surgeon and patient as possible. In this way, it will be observed, four special nurses were educated in a year, and these nurses have been most valuable to the staff, who always request the employment of these nurses, in case private nurses are desired in eye, ear, nose and throat cases. This plan worked very well for some years, but the need of continued service was constantly apparent to all concerned. Just as the nurse became of real service and dependability she would be exchanged for a new one, and then the educational process would begin all over again. The superintendent then still further improved our department, and enhanced the possibility of superior work by giving us an experienced graduate nurse to stay permanently on our service. She receives a regular salary, lives at the hospital, is an officer of the institution, and has immeasurably lightened our burden and relieved our responsibilities. She has four assistant undergraduate nurses a year, who are assigned to her service, and who are instructed by her. This is done for the purpose of relieving the special nurse of certain routine work, and also for the purpose of continuing the process of educating nurses concerning the duties of eye, ear, nose and throat nursing.

The possession of our special interne and special nurse has lead us to hope for still better things in the future. We hope and believe that if our present conditions work harmoniously

and successfully, and if our earnestness and usefulness to the hospital are further demonstrated, that within a short time a floor of the hospital will be devoted to our service, where we will have a superintendent, with nurses, sufficient internes, with a chief interne in charge, wards, rooms, operating rooms, dressing rooms, etc.—in short, a hospital within a hospital, where the cares of management will be lifted from our shoulders, and where the advantages of a special hospital will be at our disposal.

One of the most useful steps for the upbuilding of a successful eye, ear, nose and throat service, in a general hospital is the establishment of a regular day and hour for an operating clinic, where operations shall be performed, and where doctors and medical students shall be welcomed. If there is sufficient material, two or more operating days should be established, and these days should be filled with unfailing regularity and should be made as interesting as possible. At St. Luke's we now have two such days. Upon Thursday afternoon for many years all kinds of eye, ear, nose and throat operations have been performed, and recently Tuesday afternoon has been set aside for all kinds of nose and throat work. Before long it is believed that more days will have to be added, and we hope that soon continuous operative work in our department will be performed every day in the week. The necessity for filling up these operative days is a great inspiration in the search for proper operative material. Besides this, it magnifies the importance of the department, keeps the beds filled, keeps the special interne and nurse busy, and undeniably maintains and improves the technic and experience of the operator.

Every hospital supporting a live eye, ear, nose and throat department should possess an active dispensary for the treatment of these diseases, which should be under the charge of the eye, ear, nose and throat surgeons of the staff, aided by the chief eye, ear, nose and throat interne and his interne assistants. Such a dispensary is desirable, not only because it affords experience in refraction and other general work in these specialties, but because it must surely become a most important source of operative supply to the regular operative clinic. Outside of special hospitals or infirmaries, where the daily attendance of patients is abundant, it is not an easy matter to keep one, two or three operative clinics a week well supplied with material.

Every effort should be made to bring this about, and of the several available methods, a good live dispensary is one of the best.

This paper has been written with the purpose of suggesting how the eye, ear, nose and throat work in general hospitals can be improved, and made better and more convenient and useful for all parties concerned.

I have explained to you what we have done and are trying to do at St. Luke's Hospital in this city, but I do not wish to be understood as claiming a perfect service at this institution, as much remains to be done. But of one thing I am sure, viz., that the service in our department, under the present conditions, is infinitely superior to what it once was, and that the ideas carried out in this hospital might with great benefit be put in force in all general hospitals.

A METHOD OF DEALING WITH THE CAPSULE AFTER CATARACT OPERATIONS.*

By D. F. REEDER, M. D.

CHIEF OF THE EYE AND EAR CLINIC, ANCON HOSPITAL.

There has been a great deal written about the lens capsule complicating cataract operations. Its presence after cataract extraction has led many men to adopt the Smith operation of extracting the cataract in its capsule. But this operation is not considered advisable by a great majority of conservative operators.

Dr. Peter A. Callan, of New York, has devised an operation for the extraction of cataract in capsule by a cup-like instrument which lifts the cataract out by employing suction. I tried this operation in November 1910 on a case, and secured a perfect result, patient getting vision of 20/20s. But in the second case the eye was lost, not due to the operative method per se however, as the woman developed acute melancholia the first night after operation. The patient was found lying under the bed, and loss of vitreous with a detached retina was the ultimate result. The great possibility of accidents occurring through this operation has led me to abandon it, as well as the Smith operation.

The method of disposing of the capsule, which I give below, was suggested to me by my failure to extract the capsule with the cataract, and also by the large amount of traumatic

(*Read before the Canal Zone Medical Association Aug. 11, '12.)

cataracts with which I had to deal. It will be readily understood that in a work as large and varied as the digging of the Panama Canal, especially where there is much blasting, a great number of traumatic cataracts would necessarily result. The best results are obtained by immediate extraction of the lens in traumatic cases. However, whatever method is used, the capsule remains and obscures the vision. Furthermore, many times the vitreous becomes fluid, which renders subse-

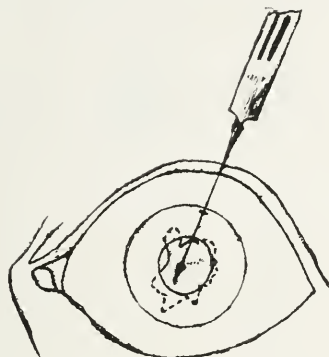


Fig. 1

quent operations on the eye a hazardous procedure. The ordinary method of needling the capsule may give good results, but it always leaves the capsule in the eye to become a source of future irritation or a hindrance to vision. It becomes attached to the iris and interferes with its function. Many times the opening is not exactly in the visual axis and an indefinite result is obtained.



Fig. 2

Capsulectomy.

The method that I have used in disposing of the capsule both in traumatic cases and after cataracts for the last two years, is as follows:

With a dilated pupil and after the usual preliminaries, an eye needle $1\frac{3}{4}$ to 2.00 m. m. wide is passed through the cornea near its margin and on to the opposite side of the eye, and passes through the capsule just underneath the iris, as shown in Figure 1. This frees the capsule from the iris and prevents its laceration in the next step of the operation. The needle is then withdrawn without the loss of fluid, even in eyes under tension and containing fluid vitreous. The smallness of the

opening and the angle the needle takes in passing through the cornea, making a valve-like action from the intro-ocular pressure are responsible for this favorable result.

Next, a small hook shown in Figure 2, similar to Tyrrel's Iris Hook, the curve of which is one m. m. wide, which enables it to pass through the opening made by the needle is used. The

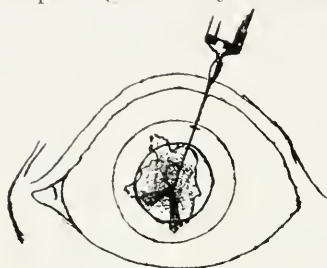


Fig. 3

point of the hook is reasonably sharp, and points almost, but not quite horizontal to the shaft. This hook is passed through the opening in the capsule made by the needle as shown in Figures 3 and 4. Traction is then made on the hook until it is near the proximal margin of the iris, when the point of the hook is turned up so that the point passes over the edge of the iris and through the capsule, insuring a firm hold. It is then withdrawn and the operation is complete. The iris and ciliary body are not disturbed, and there is practically no after effects.

This operation has been performed many times by me, and has given uniformly good results both after traumatic and

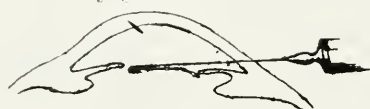


Fig. 4

senile cataract. Iritis and irido cyclitis, the only sequel to be feared, have not developed in any of my cases. In cases where the capsule is only a web-like formation, it operates equally well. Likewise, there is no difficulty in bringing the capsule through the opening where it is so dense as to entirely obscure the vision. I can commend this method of capsulotomy as being safe and sure, and not at all difficult to perform, and believe that if it is generally used, there will be less excuse for the so-called ideal operation of cataract in capsule extraction, and that the ultimate result in traumatic cases will be a great deal better, than is possible to obtain by any other method.

REPORTS OF SOCIETIES.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

REGULAR MEETING OF FEBRUARY 17, 1913, LA SALLE HOTEL.

DR. W. O. NANCE IN THE CHAIR.

Case of Tubercular Keratitis.

Dr. M. H. Lebensohn: Mr. H. H., 30 years old, a painter and moulder by trade, was first admitted to the Illinois Charitable Eye and Ear Infirmary October 13th, 1911, under the service of Dr. Nance, with the following history:

About three years before that he woke up one morning with a sensation of a foreign body in the right eye which was removed by a fellow workman. A doctor whom he saw next day did not find any foreign body. The eye not feeling comfortable after the removal of the foreign body, a few days later he consulted Dr. E. V. L. Brown (the eye then was red and painful), who made the diagnosis of tubercular keratitis, under treatment extending 5 to 6 weeks the eye became quiet.

The eye did not trouble him again seriously until recently he complained of pain, photophobia and lacrymation. The entire cornea was nearly covered with a grayish opacity, but in the lower half of the cornea an area of from 4 to 5 mm. was elevated about a millimeter. The iris markings were indistinct, pupil reacted to light, the fundus could not be seen on account of a corneal opacity, only the red reflex could be discerned. Repeated Von Pirquet tests were made which were strongly positive.

His family history elicited at the time: His father died at the age of 38 years and two sisters, one at the age of 22 and one at the age of 26, all died of pulmonary tuberculosis.

His general health was good and temperature normal. He was given one injection of old tuberculin, and the usual local treatment, atropine, dionin, etc. In a few weeks he was well again, all acute symptoms subsided and he was discharged from the Infirmary.

He was readmitted to the Infirmary the 26th of last month with the eye in the same condition as it was on his first admission. In addition his lens became cataractous. His general health good, but he had a rise of temperature 99.2 in the afternoon for a few days, after the temperature remained normal three days he was given a hypodermic injection of 4 mm. old

tuberculin, the local and general reaction was very positive, but there was also a marked focal reaction, the eye which was red and much inflamed and did not react to atropine, dilated readily and the inflammation subsided after the injection.

Dr. Tydings agreed as to the diagnosis in this case and emphasized the fact that the patient had a keratoconus. This he said could be controlled by the proper application of a bandage. He has used such a bandage in a number of cases for a number of years with good effect. It is a webbed elastic band with a cotton compress under it, which is left on until the cornea becomes absolutely normal.

In reply to a question by Dr. Faith as to how long the tuberculin treatment was carried out, Dr. Lebensohn said that tuberculin had not been used therapeutically.

Dr. W. F. Coleman had a severe case of tubercular keratitis with positive tuberculin test in which he gave tuberculin for some time without benefit. The same was true of diionin and other drugs. He got the most benefit from roentgenization.

Dr. Joseph C. Beck exhibited a typical case of acromegaly, the patient being totally blind. The acromegaly began eight years ago, and two years later the first disturbance of vision was noticed. Within a year and a half the man was totally blind. He also has a nystagmus and an optic atrophy. Otherwise the clinical history is negative.

Dr. Beck also exhibited a case of progressive optic atrophy from the disease of the hypophysis in a boy, fifteen years of age. Eight years ago he was operated on for adenoids. There was then no evidence of disease of the eye. Vision was apparently normal following the operation. There was loss of vision— $1/100$, with white pupil. The boy is able to get about and attend to his work.

Dr. Peter Bassoe inquired as to the development of the genitalia of the second patient. He thought the boy was rather fleshy and suggested that it might be a case of the Froehlich type rather than an acromegaly.

Dr. Julius Grinker referred to a case of acromegaly very much like Dr. Beck's which he demonstrated some years ago. The patient had had the disease for fifteen or twenty years, but did not show any eye findings, nor blindness, nor temporary hemianopsia. He could read a newspaper to the end of

his days. At the autopsy he found a hypophyseal tumor as large as his fist, and the optic chiasm thinned out to the thickness of tissue paper. There was an opening into the third ventricle. There was no optic nerve atrophy. He thought it rather remarkable that with an optic chiasm so thin vision still continued normal. The patient also had epilepsy. He thought that in the majority of these cases a tumor could be found in the pituitary region. He did not think that an operation would be of any benefit.

Dr. Beck, replying to Dr. Bassoe, said that the boy's functions seemed to be normal. His genitalia were of normal size and development. The boy did have a tendency to adiposity.

Commonplace Topics in Ophthalmology.

Dr. J. Elliott Colburn read a paper entitled "Commonplace Topics in Ophthalmology," in which he called attention to some of the errors made in filling prescriptions for glasses, that is, on the part of the manufacturers, and suggested that no patient should be discharged until the glasses had been checked up with the prescription to make sure that they were absolutely right. He also called attention to the fact that patients suffering from eye trouble should have their arterial tension investigated. He reported a number of cases which illustrated to his mind the necessity and importance of such an examination.

A symposium was presented on the hypophysis.

The papers of the evening were prefaced by a short talk on the gross anatomy and relationships of the pituitary body, or as it is technically called the "hypophysis cerebri," by Dr. J. F. Burkholder. The specimens were prepared in the Nelson Morris Memorial Institute for Medical Research.

It was assumed that all present had been graduated sufficiently long to have forgotten most all of the anatomy they had acquired at college; and on account of this universal fact, two brains were shown, which demonstrated very clearly, what was intended to show. One specimen was that of a dog's brain, in which the *circulus arteriosus* (circle of Willis) was left in situ, as well as the two *oculomotor* nerves. The relations of the hypophysis to these two structures and also to the *pedunculi cerebri*, the *tuber cinereum*, the *infundibum*, the optic chiasma, the optic tracts and the *corpora albicantia* were self evident on inspection. The other gross specimen was that of the brain

of a large bear. It will be observed that the two specimens shown were the brains of carnivorous animals. It is worth remembering that in this species of mammalia, the diaphragmatic sellae is poorly developed and can be said to form a very indifferent roof to the fosse hypophyseos (sella turcica) and as a consequence the pituitary body is easily recovered with the brain, while the reverse is the case in all herbivora and omnivora.

Another instructive demonstration was a series of sagittal sections of the hypophysis of the sheep. These sections were stained by the contrasted Pal-Weigart process, and showed the posterior or pars nervosa, the anterior lobe, and the pars intermedia of Herring, all of which could be easily seen without the aid of a glass.

Attention was called to the arterial supply and sinus relations of the hypophysis. The pituitary body in some animals, as in the sheep for example, is surrounded by a very dense plexus of arterioles, that is formed by the breaking up of the internal carotid artery, as it enters the cavernous sinus, forming what Galen called the rete mirabile, this plexus of vessels completely surrounds the hypophysis, though the systems of the opposite sides do not anastomose, thus supplying an enormous quantity of blood, which is unquestionably for secretory purposes.

Dr. Dean D. Lewis discussed the pathology and symptomatology of tumors of the hypophysis, and showed a very interesting series of lantern slides on which he based his remarks.

Tumors of the Hypophysis and Their Relation to Acromegaly and Frohlich's Syndrome.

Dean Lewis: Much of the confusion that has existed concerning the relation between lesions of the hypophysis and clinical syndromes associated with them has been due to a misinterpretation of the pathological changes occurring in the gland. Many of the difficulties in pathological diagnosis were due to the rather imperfect knowledge that we had at one time concerning the histology of the gland.

Most of the tumors which were found associated with the early cases of acromegaly were regarded as sarcomas. If they were sarcomas they were destructive in character and acromegaly should then be regarded as the result of diminished secretory activity on the part of the hypophysis. A refined his-

tologic technic has shown that the tumor most commonly associated with acromegaly is an adenoma of the anterior lobe cells and that in by far the greater proportion of cases the adenoma associated with this symptoms complex is composed of eosinophile cells. Depending upon the stage at which the hypophysis is examined in cases of acromegaly, a hyperplasia of anterior lobe cells, an adenoma of the same or a cyst may be found. The tendency in all glands is that periods of intense activity, associated with hyperplasia or adenoma formation is followed by regressive changes. Cyst formation represents such a regressive change in the hypophysis and is associated with the terminal or cachectic stage of acromegaly.

Chromophobe adenomas are usually associated with marked neighborhood symptoms and many of the phenomena of Fröhlich's syndrome.

Pathologically, one of the most interesting types of tumor about the hypophysis is that which develops from undifferentiated mouth epithelium. Nests of undifferentiated mouth epithelium are frequently found upon the anterior surface of the infundibulum. Tumors arising from these occupy the interpeduncular space, producing eye symptoms early by pressure upon the optic tracts. This type of tumor is the one most frequently accompanied by Fröhlich's syndrome. These tumors tend to undergo cystic degeneration and histologically correspond rather closely to adamantine epitheliomas occurring in the jaws.

Recognition of the different cellular elements occurring in the hypophysis and their relation to tumor formation simplifies the classification of tumors and renders clear the relation which the tumors bear to the different syndromes associated with altered hypophyseal secretion.

Dr. Joseph C. Beck discussed the present status of the various operative procedures employed in the removal of tumors of the hypophysis, illustrating his remarks with lantern slides, and gave a brief review of the literature on this subject, with special reference to the ocular manifestations.

The Evolution of the Operation on the Hypophysis.

The development of the operative interference on the hypophysis dates back to the experimental work on animals, especially on cats, splitting the soft palate and entering the sphenoid from the vault of the pharynx. About the same time

Fritz Koenig reported a similar procedure on the cadaver but it remained for Sir Victor Horsley to perform the first operation on man after the suggestion of Koenig on the cadaver. This operation was by the subtemporal route (middle fossa). The extracranial methods aside from the one suggested by Koenig, were performed by Schloffer, who turns the nose to one side and a temporary resection of the superior maxilla to the opposite side thus reaching the sphenoid and sella tursica, the turbinates and septum being removed. This operation was modified and improved upon although the principles remained the same, by Von Eiselsbergard Hochenegg. The return to the intracranial route and one finding considerable favor was that of Krause, who exposed the brain in the fronto-temporal region on one side by an osteo-plastic flap elevating the frontal lobe as far as the region of the optic chiasma, and the dura, then incised the region of the infundibulum located by an angular knife and slit the dura diaphragm, thus exposing the pituitary body. This method was soon modified by Killian, who made an osteo-plastic flap exposing both frontal lobes immediately incising the dura and retracting the brain, thus exposing the sella in the median line. The next progressive step in the operative procedure was by the extracranial method. This was by severing the nose, laying it on one side, taking the eventual blind eye so frequently present, removing the orbital contents and the internal orbital wall including the turbinates and ethmoid cells, thus reaching the sphenoid and sella. It was Loewy's operative technique of severing the nose by making an incision below the upper lip and retracting all the structure covering the face that led to the next progress in the operation to which Kanavel of Chicago contributed the first procedure, he severing the nose at the natural alar folds and septum, turning this up and removing the septum submucously reaching the sphenoid and thus the sella. This was soon followed by the suggestion of Halstead using Loewy's principle of entering the nose removing all intranasal structures before entering the sella. About the same time several men, Cushing, Bartley and others, attempted the cranial route. At this time the first rhinologist came into the arena, viz., Hirsch of Vienna, who entered the sphenoid by the Hyack method, doing a preliminary middle turbinectomy and ethmoid curettement, thus opening the sella by specially devised

instruments. This was soon followed by modifications of West, who in addition to this former procedure removed a section of the posterior portion of the septum. This led to the next modification or rather the new developed technique of Hirsch by making a complete resection of the septum submucously converting both sphenoids into one large cavity, thus entering the sella. Citelli also modified the operation by only resecting the posterior portion of the septum, entering both sphenoids and following the same procedure as Hirsch.

Chiari of Vienna reached the sella by a procedure identical to Killain's radical operation on the sinuses, claiming more direct route and less deformity.

Recently MacArthur, of Chicago, advocated a method transfrontal sinus supraorbital by removing a section of bone temporarily following very much the suggestion of Krause and the most recent article of this operation is the modifications of Frazier of Philadelphia, who making a large frontal flap with the head hanging in a nose position is thus able to get a wider exposure.

In conclusion the writer wishes to suggest an operation which he has developed on cadavers after having performed almost all the other aforesaid operations on the cadaver. Believing this to be the shortest, easiest and least deforming route to the sella. It is essentially the Behren's operation of reaching the sphenoid by way of the antrum of Highmore. The detail description and illustration of the technique of this operation, as well as the majority of the above mentioned, will appear in an original article in the near future in *Ophthalmology*.

Hypophysis Disease from the Ophthalmological Standpoint, with a Report of Two Cases.

Dr. Emory Hill read, as an entrance thesis, a paper entitled "Hypophysis Disease from the Ophthalmological Standpoint, with a Report of Two Cases." He discussed briefly the anatomy and physiology of the hypophysis, referring especially to the recent experimental work of Cushing and others establishing the classification of pituitary disorders as hyperpituitarism (gigantism and acromegaly), dyspituitarism, and hypopituitarism (Froehlich syndrome). The first case was typical of hypopituitarism: A far, sexually infantile boy with polyuria, presenting transient visual disturbance without oph-

thalamoscopic signs and regarded as hysterical: later primary optic atrophy and temporal narrowing of the visual field and scotoma developed. Symptoms of increased intracranial pressure supervened. The X-ray showed an enlarged sella. Operation by the Kanavel method revealed a cyst which was evacuated, resulting in recovery, with some improvement of vision which has persisted for two years.

The second case represents the group called "dyspituitarism": former pituitary over-secretion being indicated by precocious sexuality and bony growth, later undersecretion manifested by persistent subnormal temperature and increased carbohydrate tolerance. The X-ray shows some erosion and backward tilting of the sella. Temporal hemianopsia (left) and blindness (right), with primary optic atrophy and abducens paresis (right) are the eye findings. Operation is not advised, the growth probably being interpeduncular and involving the hypophysis secondarily by pressure.

The literature of the eye symptoms is reviewed, and the conclusions drawn are that temporal hemianopsia is found only in a minority of cases, many varieties of visual field limitation, with color interlacings and scotomata, being possible evidences of hypophysis disease, while exophthalmos, ocular muscle palsies, papilledema, and secondary optic atrophy may result from pressure in the region of the hypophysis as in other parts of the cranial cavity.

Dr. C. D. Wescott said that Dr. Hill's first case illustrates the trouble one gets into by not making a thorough physical examination of every eye patient and getting a complete history. There was nothing in the history of the first case when he first saw the patient which seemed to warrant a thorough physical examination. The practical recovery of vision in the blind eye in less than two weeks seemed to confirm the diagnosis of hysteria. This was the first case of the kind he had ever seen, but it certainly had converted him to the absolute necessity of full and complete examination in every case. He suggested that it might be well for the ophthalmologist to consult with the internist, the neurologist, the rhinologist, and so forth, whenever such consultation could be made with profit, because it would save him from any pitfalls and insure better service to the patients.

WESLEY HAMILTON PECK, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY

MEETING OF 15TH FEBRUARY, 1913.

DR. W. C. BANE PRESIDING.

Chronic Iridocyclitis After Injury.

Dr. Melville Black presented a youth of 19 years who in August 1912 had been injured in the left eye by a piece of wire from a wire cable. The fragment, which was a half inch long, penetrated the lens, but one end still protruded from the cornea, and the injury to the eye was much increased by the movements of the lids. The foreign body was removed, and linear extraction of the opaque lens later performed, by an oculist in Wyoming. The upper outer third of the iris had become covered by a vascular membrane, the anterior chamber was almost obliterated, and the eye was steadily going to the bad. It was a case of chronic iridocyclitis. Tension was slightly subnormal. Was it advisable to wait on the chance that the eye might become quieter, or would it be well to attempt slitting or removal of part of the iris, perhaps combined with irrigation for removal of some blood that had collected and partly organized in the anterior chamber?

DISCUSSION. Dr. Jackson thought that even if the eye were in good condition for operation, there would be no prospect of getting as good vision in this eye as the other already had, and felt that the chronic irritation in the eye was a strong contra-indication to operative interference. Although the tension was not far from normal, the eye might be in the balance between softening and glaucoma, and operation was likely to turn the chances towards the latter condition. Sympathetic involvement was possible. Browning had reported 17 cases of sympathetic involvement in which the eye had become quiet after use of salvarsan; and this treatment might be considered as regarded this eye, or a vaccine might be tried.

Dr. Sedgwick suggested that the main advantage of operation was likely to be a better excuse for removing the eye.

Dr. Neepor would limit surgical intervention to a broad iridectomy.

Dr. Patterson supported Dr. Jackson's views, and would remove the eye if the systemic treatment proved unsuccessful, because of danger to the other eye.

Albino Benefited by Amber and Correcting Lenses.

Dr. G. F. Libby again presented to the Society a case of albinism presented five years earlier. In accordance with sug-

gestions then discussed, the child had been given amber glasses containing her high astigmatic correction. The result had been very satisfactory. Vision had improved from inability to see a chair distinctly to R. 5/60 and L. 5/45, and the patient had succeeded in keeping up with her class in school. She went into the open air and sunlight with comfort, and the mental and physical development were good. The child had been seen in 1910, when Dr. Jackson and the reporter had agreed that there was increase of pigment in the iris and ciliary region, at the macula, and possibly in the choroid. Her present correction was R. and L. -2.25 sph. with $\times 4.5$ cy. ax. 90° .

DISCUSSION. Dr. Black suggested the use for near work of a grab back consisting of a disc with a small aperture.

Various other suggestions were made, for the use of a slit instead of a round aperture, for shielding the eyes from light entering laterally, and for a double slit, vertical and horizontal intersecting.

Coloboma of Iris and Choroid.

Dr. J. A. McCaw presented a boy of 8 years who had bilateral coloboma of the iris. In the right eye there was a coloboma of the lens. The left lens was opaque from congenital cataract, but there was no reason to suppose that the conditions otherwise differed from the right eye, in which there was a large choroidal coloboma below. A wide lateral nystagmus made it difficult to decide as to the relation of the coloboma of the choroid to the optic disc. There were no deformities in other members of the family.

DISCUSSION. Dr. Jackson thought the coloboma of the choroid surrounded the disc.

Old Trachoma with Blepharospasm. Improvement After Operation on Nasal Septum.

Dr. W. H. Crisp presented a man of 40 years who had been first seen in July, 1912, on account of extreme blepharospasm.

The patient stated that his sight had been all right until seven years back, when the eyes became sensitive to light, congested and painful, and there was marked lacrimation. The trouble had at first been called keratitis; but later, by a Denver oculist, trachoma. Several operations had been done on the eyes, such as sand-papering, rolling, and canthotomy for the spasm. The patient came to the office led by his daughter, and wearing black glasses with side shades. The lids were held

tightly shut; and when instructed to open the eyes, even in a subdued light, the patient opened his mouth, and contracted every muscle of his face, but only succeeded in very slight separation of the eyelids. When the lids were forced apart, or the upper lid everted, a violent attack of sneezing followed. There were apparently characteristic trachoma scars inside the upper lids, some pannus and old corneal infiltrates, and ciliary congestion. On July 26 tarsal excision was kindly done on both upper lids by Dr. Casey Wood of Chicago, who was visiting Denver in connection with the Colorado summer course in Ophthalmology. The lids made a good recovery from the excision, but there was no marked change in the irritable condition of the eyes. Local applications of tannin in glycerin, ichthyol in almond oil, and powdered atropin were used. The attacks of sneezing continued. The patient's nose was externally badly deformed as the result of a fall from a mule in childhood, and there also seemed to be marked obstruction to nasal respiration. He was therefore sent to Dr. W. C. Bane, who found the septum much deflected, and on August 27 did a sub-mucous operation for relief of this condition. The right eye was much whiter next day, but became redder again in a day or so. After removal of the nasal dressing, both eyes became clearer, the patient felt better, opened his eyes wider, and no longer sneezed when the lids were widely separated. Ten or eleven weeks after the first septum operation, the patient had an acute cold in the head during which the eyes were much worse again. On November 26th Dr. Bane did a second operation of the septum. From a few days after this operation there was almost continuous improvement in the condition of the eyes. The patient now keeps his eyes well open even in a rather strong light, his eyes are white, and he has gained 15 pounds since July.

Dr. Bane described the nasal condition. The septum had been completely adherent to the left wall of the nose, so that at the first operation it had been impossible to work much beyond the adherent point. The inferior turbinal on the right side was hypertrophied, but much smaller than before operation. It was the most difficult septum case he had handled.

DISCUSSION. Dr. Jackson stated that there had been some temporary improvement after the operation on the lids, while Dr. Crisp was away on a vacation, but no lasting improvement had occurred until after the nose operation, when the change was very marked.

Dr. Sedwick cited a case of blinking of the lids which had persisted after refraction, but had stopped after use of an atomiser for the nose.

Dr. Patterson thought that the eye condition might be explained on the basis of venous obstruction in the nose.

Dr. Black doubted whether the nasal operation would have been followed by much improvement if the lid operation had not been done.

Dr. Neeper referred to a statement by Weeks that he had seen no case of improvement in trachoma after tarsal excision.

Dr. Matson referred to the case of a woman of 55 years whose eye trouble had begun three years ago, and had included corneal ulcer, blepharophimosis from chemosis, symblepharon on the left side, and entropion, but no pannus. The insides of the upper lids showed very bad scarring, yet trachoma was denied.

Dr. Jackson suggested that Dr. Matson's case might be one of pemphigus.

Dr. Magruder thought that in Dr. Crisp's case the nose and eye conditions had interacted, and that neither would have cleared up without operation on both.

Sarcoma of Ciliary Body. Transillumination.

Dr. Bane presented a preliminary report on a probable case of sarcoma of the ciliary body. The growth had separated the root of the iris on the nasal side, and also appeared slightly on the surface of the sclera in the form of a pigmented area. Dr. Bane demonstrated on the enucleated globe the sharp indication of the presence of an intraocular mass by means of a pocket electric light, the lamp of which he had protected with a small hard rubber cuff for purposes of transillumination.

Steel Injury of Eyeball. Simple Sideroscope.

Dr. Bane showed an eyeball which had been enucleated after unsuccessful attempts at magnet removal of a piece of steel. A fragment from a drill which was being struck with a hammer passed upward and backward through the cornea, iris and lens. X-ray photographs had shown the presence of a rather large piece of steel in the back part of the eye. The eyeball had been bisected after freezing, and the piece of steel was found imbedded in the sclera at the back of the globe.

Dr. Bane also showed a simple sideroscope which he had made, and with which he had confirmed the presence of the steel in this eye before enucleation. It consisted of a large

glass jar from a cork in the top of which was suspended, by an adjustable wire and a delicate silk thread, a horizontal magnetized steel knitting needle. One end of the needle projected through a hole in the side of the jar, to an extent sufficient to allow of its approximation to the eye under examination. The action of the sideroscope was demonstrated on the eye containing the fragment of steel. The sideroscope was more reliable than the test with the magnet, since the absence of pain on applying the magnet was unreliable.

Dr. G. F. Libby made a further report on a case of steel injury presented to the Society by Dr. Walker in December. The patient was a charity case in one of the hospitals, and so had fallen into Dr. Libby's hands. The eye had been removed after an unsuccessful attempt at removal of the piece of steel with the hand magnet and scissors, the points of the latter being inserted into the vitreous. On freezing and bisecting the eye, a tough mass of purulent exudate was found in the lower part of the vitreous, occupying about one-eighth of the whole vitreous body, and in intimate relation with the posterior capsule of the lens. The foreign body, a very small one, was found imbedded in the exudate. The point of special interest was the finding of the foreign body low and anteriorly close to the ciliary body; whereas at an earlier date its position had been shown to be about the middle of the vitreous. This had been before the diagnostic application of the giant magnet.

DISCUSSION. Dr. Jackson, who had taken part in the attempt at magnet extraction in the last case, stated that the scissors had been used in the belief that the foreign body was in the vitreous. There was a small track from the back of the upper part of the lens down through the vitreous. The giant magnet attempt had probably brought the foreign body forward to the ciliary processes.

Dr. Crisp said that the case suggested the possible danger in the diagnostic use of the giant magnet.

Angiomatosis of the Retina. (Von Hippel's Disease.)

Because of the interest attached to the discovery of a disease having certain sharp characteristics, but until recently unrecognized as a distinct condition, Dr. Jackson showed a number of illustrations from the literature of an angiomatosis of the retina, first recognized as an entity by Von Hippel, and known in Germany by his name. The disease was essentially one affecting the retinal vessels; led to degeneration of the

nerve elements, increase of supportive tissue, and retinal hemorrhage; and its characteristic lesion according to Von Hippel was a rounded swelling in some part of the fundus, with one or more large arteries and veins running to it. The final outcome was glaucoma.

After hearing Dr. Jackson's description of these cases, Dr. Bane stepped aside and produced from his records a sketch, made in 1895, from one of his own patients, showing a general fundus appearance completely agreeing with the typical picture shown by the printed illustrations. Dr. Bane's patient, then 32 years old, had stated in 1895 that he found in 1891 that the vision of his left eye was defective. During 1892 and 1893 the vision of both eyes had been much worse than the time of his visit. The left pupil had responded to accommodation, but apparently not to light. The left eye diverged 6 m.m. and its movements were unsteady. The visual field of the left was much contracted in the upper and inner quadrants. The discs appeared normal, and the pupillary action and visual field of the right were normal. V. R. = 6/15, L. = 1/50. The right upper temporal vein and artery were both tortuous and three times the normal diameter. Up and out $3\frac{1}{2}$ disc diameters from the disc was a rounded tumor 2 disc diameters across, and having a sharp edge except at the upper outer side, where the edge was feathery. The mass was in intimate relation with the main upper temporal vessels. On a branch vessel to its upper outer side were two much smaller tumors. The artery, as it left the disc and for a disc diameter beyond, was narrow and intermittently beaded. The vein disappeared as it reached the disc. Some distance below and slightly to the outer side of the main tumor, were some fine whitish deposits. The left upper temporal artery and vein were irregularly enlarged. The artery become normal for $1\frac{1}{2}$ disc diameters after it had gone a disc diameter from the disc, and then became beaded and enlarged for some distance. The vein was constricted as it left the disc, then dilated to double normal caliber, and then gradually fell away to more normal caliber.

Metastatic Bilateral Iritis Following Mastoiditis and Pneumonia.

The following case was reported by Dr. J. A. Patterson: Following an epidemic cold, a previously healthy boy of 9 years had a rapid otitis media and mastoiditis with epidural abscess. The mastoid abscess was opened, and the next day

right-sided lobar pneumonia developed. Four days later, after improvement for twelve hours, there was a sharp rise of pulse, temperature, and respiration, and the boy became delirious. Death occurred two days later. Eye symptoms had been noted by the nurse three days before death. When Dr. Patterson saw the boy an hour before death, there was bilateral iritis with much exudate, which completely filled the pupillary area and cut off all fundus reflex. The mastoid pus was reported to show pneumococcus. A local autopsy of the mastoid region disclosed a clot one inch long in the lateral sinus and attached to its wall. As regards the eyes the case was probably one of pneumococcic metastasis.

DISCUSSION. Drs. Black and Jackson thought the case likely one of metastatic ophthalmia. Such cases were not rarely bilateral.

Dr. Bane did not think operating on the mastoid within 24 or 48 hours was commonly good practice. Opening up tissues before nature had had time to wall off the invasion was to open up the way to more general infection.

As illustrating the complications of opening up diseased bone, Dr. Bane instanced a case in which a good deal of disturbance of the nose and lids had followed operation for ocular proptosis with frontal sinusitis.

Anomalous Appearance at the Macula.

Dr. W. A. Sedwick presented a young man in whose left eye the center of the macula was occupied by an oval white area, its longer, horizontal diameter being rather greater, and its shorter, vertical diameter rather less, than one-fourth the diameter of the disc. The area was redder towards its periphery than in the center, and was surrounded by a slight pigment line, beyond which was seen the normal macular deepening of the regular fundus tint. There was another, much smaller spot below and to the temporal side of the disc, and an even smaller one some distance up and out from the macula. The patient's visual acuity was normal in each eye.

Dr. Jackson thought he could make out some delicate choroidal vessels through the center of the spot.

Dr. Libby had recently seen the fundus which had two foveas.

Choroidal Sarcoma.

Dr. Edward Jackson showed a gross specimen, and also microscopic sections, from an eye which had been enucleated

on account of the presence of an intraocular tumor. The patient, a man of 57 years, had come on account of failing vision. The tension of the affected eye was then 58 m.m. of mercury with the Gradle-Schiötz tonometer. No definite fundus reflex was obtained. The retina was noted as probably detached. Transillumination was good except in the upper nasal quadrant of the globe, from about 90° to 150°. By ophthalmoscopy with direct sunlight a yellowish mass was indistinctly visible in the upper nasal quadrant. The patient had been operated upon for fibroid tumor of the testicle about 14 years earlier. After this examination the patient was next heard from through a general physician in western Colorado to whom he had gone to have the eye enucleated. The globe contained, in the region of poor transillumination, a large roundish mass, which on microscopic examination proved to be a sarcoma, composed of small spindle cells, and irregularly pigmented, some parts being entirely free from pigment. A peculiarity of the growth (hematoxylin-eosin stain) was a dense massing of heavily staining cells in thin strata, which, alternated with the lighter staining cells, produced almost a tubular appearance in transverse section.

DISCUSSION. Dr. Patterson wanted to know whether the sunlight ophthalmoscopy showed more than was to be seen with the electric ophthalmoscope.

Dr. Jackson answered that sunlight ophthalmoscopy was the only method which showed up the mass in this eye. If sunlight were used in such cases, it must be either with a plane mirror, or with the light out of focus on the patient's eye; because of the risk of excessive heat.

WILLIAM H. CRISP, Secretary.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF FEBRUARY THIRD, 1913.

DR. S. LEWIS ZIEGLER, CHAIRMAN.

Multiple Pterygia.

Dr. William Zentmayer presented a case of multiple pterygia. The patient was a man 24 years of age, engaged in press work. His attention had been called to the growths but two weeks before by a companion, but were evidently not so recent in origin. In O. D. there were three points at which the bulbar conjunctiva was drawn over onto the cornea; below, to the temporal side and above. In O. S. there was one at the

nasal side. The folds were small and nonvascular. They resembled the small attachments that are seen in marginal degeneration of the cornea.

Ciattrical Epicanthal Fold.

Dr. Zentmayer also presented a case of extensive scarring of the face with the production of a broad epicanthal fold. The patient, a girl aged 19 years, had been burned with acid when a child. The scar surrounded the outer angle of the mouth and extended upwards along the side of the nose and at a point corresponding to the lower margin of the nasal bone a fold of normal skin of the upper lid was caught producing a condition resembling an exaggerated epicanthus. The deformity was corrected by freeing the incarcerated fold and raising it by removing a crescentic area of skin from the inner angle of the lid just above the inner canthus.

Intranasal and Sinus Conditions in Their Relation to Ophthalmology.

Dr. Francis R. Packard addressed the society by invitation and discussed in detail the relation of intranasal and sinus conditions to certain ocular affections. He stated that though ophthalmologist has classified the eye lesions of intranasal and sinus origin, from the rhinologist point of view of what pathological condition of the nose result in ocular disturbance has not been quite so fully exploited. The author, after considering the ordinary sinus conditions and the methods to be employed in their diagnosis, spoke of the nasal septum and its important bearing on intraocular manifestations. In our search for purulent sinus disease we are apt to overlook other intranasal diseases which are capable of causing very grave eye disturbance.

Dr. Posey complimented Dr. Packard on giving so concisely the various rhinological lesions which might evoke ocular symptoms. He desired to refer briefly to another class of cases which Dr. Packard had not referred to, namely those in which ocular symptoms were set up by a mere conjunction of the cells. He had noted in such cases, marked though slight changes in the refraction, but was unable to explain how these occurred, but thought it not unlikely that they were dependent upon excitation of the ciliary muscles in consequence of the action of toxines generated within the inflamed sinuses.

Dr. Posey referred also to the obstruction of the lacrymo-nasal duct to which Peters had some years ago called attention and to which the name of prelacrymal tissue is usually as-

signed, citing the case of a young man recently under his care who developed a large mucocele of the sac which had been successfully removed in toto a year previously. Recently a firm mass conforming in its position and outlines to the latterly displaced wall of the lacrymo-ethmoidal cells had appeared, which had occasioned some displacement of the eye-ball. Incision into the orbit discovered the swelling to have been occasioned by a distension of these cells by a mucocele, in consequence of which the bone confining the contents of the cells had been apparently absorbed, the mucus being prevented from penetrating the tissues of the orbit by the thickened mucous membrane. After the evacuation of the cells, Dr. Geo. B. Wood, who was assisting him in the operation, opened a passage into the roof of the nose and secured free drainage into that organ through a large drainage tube. The orbital wound was then closed and a firm pressure bandage applied. Healing of the wound was prompt and there have been no complications. The tube will be removed after three or four weeks.

Dr. Samuel D. Risley said he was personally indebted to Dr. Packard for his thoughtful paper based so obviously upon a large experience. Regarding the difficulty of diagnosis in disease of the sphenoid sinus he was quite in accord. He asked whether Dr. Packard had observed anything characteristic in the pain. In one case Dr. Risley had seen, bitter complaint was made of a deep-seated "bursting" pain in the head. He asked whether the essayist favored opening the frontal sinus above the supra-orbital ridge, stating his own preference for an incision into the floor of the sinus since it was readily accessible, affording better drainage and caused less deformity. Speaking of the congestion and stuffing of the nostrils and accessory sinuses, he thought it important to carefully consider the systemic conditions before proceeding to surgical procedures. So-called "colds" were often the expression by the mucous membranes of intestinal toxemia and acidosis, and improved rapidly under suitable treatment of the faulty systemic state.

A New Point in the Technique of Blepharoplasty.

Dr. William Campbell Posey exhibited a woman upon whom he had recently restored the outer half of the upper right eye-lid, which had been excised by another surgeon some months previously on account of epithelioma, by a pedicle flap

taken from the forehead. To provide the flap with an epithelial lining, thereby preventing in a measure its later contraction and the irritation of the eye-ball by the juxtaposition of the subcuticular tissues of the pedicle flap, he inserted a quadrilateral flap of skin from the fold of skin just below the brow and had turned it down over the eye-ball, leaving its lower margin attached to what remained of the mucous membrane of the external portion of the superior cul-de-sac. Union had been prompt throughout and he had been much gratified by the excellent contour imparted to the lid, by its motility which it had acquired by its attachment to the inner half, and by the soft skin lining of the lid, which was entirely non-irritating to the eyeball.

Tumor of the Ciliary Body.

Dr. Aaron Brav exhibited a patient aged 32 years, who had consulted him for glasses. Upon examination it was found that the patient had a paralysis of the right external rectus muscle, and in the outer lower quadrant of the anterior chamber there was a distinct mass 6x4 m.m. in size filling in the angle of the anterior chamber at that point. The mass was of dark brown color except in its extreme periphery where the color resembled the iris. The mass was non-vascular, and was apparently causing no symptoms whatever.

J. MILTON GRISCOM, Secretary.

PORTLAND OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SOCIETY.

DECEMBER 16TH, 1912.

DR. BEAUMONT IN THE CHAIR.

Dr. Dickson who has returned recently from a tour of the European clinics gave an interesting resume of his experience. He paid a well deserved tribute to the teaching facilities in the Vienna clinics, and could not help noting the vast improvement in the ease with which an American, through the Medical Club, was enabled to save much time and inconvenience in locating the particular clinics which interested him. While possibly they had more material with which to work and better teaching facilities, the practical results were not any better than those achieved by our confreres in Philadelphia, Chicago, New York and Boston. He spoke of the work of Hirsch on the pituitary body and watched him perform one of his operations. Result in this case was good. In reply to the

question as to its effect on vision he was told that it was always beneficial. In operations on the frontal sinus Killian's method seems to have fallen into disuse, although he heard of no other operation advanced in its stead. In the ear clinics, every one seemed to be working on the functional tests of the labyrinth, the nystagmus and fistulae tests. From personal contact with Barany he believes he is entitled to the well deserved international reputation which he possesses. By reason of the fact that Heath was in Boston at the time he visited London he was unable to see any of his work on the surgery of the mastoid. In regard to the treatment of paracensis, the impression carried away by the speaker was not altogether a favorable one. In regard to the eye: In Egypt inflammatory diseases of the eye are extremely prevalent. Ophthalmia Egyptica, usually considered to be trachoma, is frequently a combination of infections caused by the trachoma bodies, gonococci and Koch-Weeks bacilli. In Luxor and Cairo he was impressed with the hopelessness of attaining any results through treatment, as the natives were absolutely shiftless and indifferent. He visited hospitals in Greece, Turkey, Russia, Sweden, Germany and Holland. In cataract operations there was the usual controversy between the simple and combined operations: and between preliminary iridectomy and the performance of the whole operation at one time. Opinion seemed to favor the latter procedure. While in Vienna saw two intracapsular extractions performed by Major Smith's nephew. Operation seemed awkward and difficult. There was very little enthusiasm evident in favor of this operation. He noticed that Fuchs in performing a simple extraction often did a Hess iridectomy, which prevented a prolapse and was scarcely visible. He noted the almost universal use of cocaine in ophthalmic surgery, plastic operations excepted. The operation for the extirpation of the sac is still performed everywhere. West of Berlin operates through the nose. He drains the sac through an artificial opening in the lateral wall of the nose above the inferior turbinate. He (West) is enthusiastic over his results. He was favorably impressed with Lindner's work on trachoma, and gathered that Arlt's view that trachoma is a modified form of gonorrheal infection may prove to be correct. There appeared to be nothing new in the treatment of this disease. In touching upon the subject of glaucoma he showed the Schrob tonometer and spoke of its proven value as a scientific instrument. He men-

tioned the three operations for this disease that appear to be attracting the attention of the profession at this time, viz.: the La Grange, Herbert and Elliott operations. He described the technique of the two latter operations and showed the Elliott trephine. He preferred the Elliott operation for its simplicity and apparent efficiency. In conversation with a number of men as to the value of sodium citrate in reducing intraocular tension, he was convinced that it was of distinct value.

DISCUSSION:

I. Dr. Cassady asked whether many patients show an idiosyncrasy to cocaine when it was injected deep into the orbital tissues, preparatory to performing enucleation.

II. Dr. Bailey spoke of the etiology of trachoma and its possible relation to gonorrhea—a view held by many investigators.

III. Dr. McCool, speaking of the Smith operation for cataract, had never performed the operation himself, but had assisted at three—one of which was successful, while the other two, so far as he was able to say, were not. Had the pleasure of hearing Dr. Vail of Cincinnati immediately after his return from India. With but few exceptions, no single operator does a sufficient number of cataract extractions to warrant his attempting the operation routinely as Smith performs it. A modified technique, such as Dr. Vail has since presented, or one suited to the needs of each individual operator, will probably come to be the operation for American surgeons. He spoke of some very favorable reports from the east of the Elliott trephining operation for glaucoma, and believed it was well worth a trial. In regard to the use of the tonometer, there ought not to be any division of opinion. Surely the old way of determining the tension is unscientific as well as unreliable. Referring to enucleation under cocaine anaesthesia, he is convinced that our American patients would have none of it. We cannot compare the clinical methods of the continent with those in vogue in England or America. We have a different class of people with which to deal.

IV. Dr. Kiehle said that while all of Dr. Dickson's remarks interested him, he was particularly impressed with his reference to the work of Heath. He had seen quite a great deal of Heath's work and gathered much that was helpful from it. However, he could not accept all of his teachings. He believes that we should not follow too closely the operative

technique of any one operator, but should pick out the best features of the work of several; and, impressing our own ideas on our work, seek to perfect a technique which shall be best suited to our own needs.

V. Referring to enucleation under cocaine, Dr. Beaumont recited an instance in his practice in which he tried to perform this operation on a man. Probably through faulty technique in injecting the cocaine the smooth and satisfactory operation was impossible, for the reason that the patient jumped from the table and refused to allow him to continue the operation.

Dr. Dickson in closing said that he had once been urged by a patient to enucleate an eye under cocaine, but refused. However, another operator did remove the eye with this method and reported that the patient apparently suffered little. In plastic work Dr. Dickson felt that it destroyed the landmarks. There is certainly a tendency on the part of most continental operators to allow their cataract cases more freedom after the operation. In some instances the patients walk out of the operating room.

Clinical Reports:—Dr. McCool presented an improved electric oblique illuminator.

JOSEPH L. MCCOOL.

JANUARY 20TH, 1913.

DR. NUNN IN THE CHAIR.

The Extirpation of the Lacrimal Sac.

Dr. Sherman E. Wright reviewed briefly the anatomy and physiology of the lacrimal apparatus. Spoke of the frequency with which blennorrhoea follows obstructive disease of the lacrimal duct and the danger to the integrity of the eye which usually follows indifferent treatment of this pathological process. There is present always the liability to secondary streptococcic infection. This is illustrated by the following case: Mrs. S. Age 57. Chronic dacryocystitis of many years duration. An attack of acute dacryocystitis four years ago. Advised extirpation of sac. It was suggested by the patient that the operation be delayed one month. In the meantime the patient developed another attack of acute dacryocystitis which resisted abortive measures, and necessitated surgical interven-

tion to bring about a cure. For many years surgeons have been probing all cases of chronic dacryocystitis, with more or less indifferent success. He referred to a paper by Dr. H. Moulton, in the discussion of which Dr. Wm. E. Gamble of Chicago dissented from some of his statements, urging that in his judgment in many cases the use of styles should neither precede nor take the place of the preferable method of treatment, viz: extirpation of the sac, often the disease is confined to the sac alone. In discussion Dr. Pyle of Philadelphia concurred in this opinion. Dr. Wright quoted from Fuchs, Poemer and Nuel, as favoring the extirpation of the sac when blennorrhea was present as a prophylactic measure against infection of the cornea, and in those with normal sacs who were liable, by reason of their occupation, to repeated slight injuries to the cornea. He advised strongly against long continued probing when a quicker and infinitely surer method lay in extirpation of the sac. He advocated the Meller method of operating with cocaine and adrenalin as the most likely to be followed by the least amount of annoyance from hemorrhage. He gave two indications for the performance of this operation. (1) All cases of blennorrhea with a history of repeated probing. (2) A stenosis of the duct which does not yield easily and quickly to a No. 4 probe. In closing he merely alluded to the technic of the operation, assuming that all were familiar with it.

DISCUSSION. Dr. Bruere first saw the operation performed by Foelker of Kiel in 1895 under local anaesthesia. Considers it one of the most difficult operations in ophthalmology to do successfully. Removal of accessory lacrimal gland to obviate an occasional annoying residual epiphora. Has never seen dryness of globe following the operation. The easier and better method for both the operator and patient is the employment of local anaesthesia.

Dr. Kiehle agreed with those who believe that the diminution in the secretion of tears is due to an atrophy of the lacrimal gland. Has not been able to satisfy himself that local anaesthesia is the best, and prefers to operate with a general anaesthetic, using local injections of adrenalin to control the hemorrhage.

Dr. Clement favors the use of a solution of cocaine and adrenalin injected locally to modify pain and control the hemorrhage—a method used extensively in Boston.

Dr. R. A. Fenton feels that extirpation should be reserved for use after more conservative methods of treatment have failed. A resection of the duct by removing the external wall of the nose will no doubt come to have a distinct place in the surgery of this affection, and would, in suitable cases, more nearly approach the ideal, i. e., free and unobstructed drainage of the sac. Uses adrenalin locally, with general anaesthesia. Referred to the use of tinted paraffin to facilitate the recognition and removal of the sac.

Dr. Ainslee advocated immediate extirpation of the sac without resort to palliative measures, believing that they are chronic as a rule and the best thing to do is to remove the sac at once.

Dr. Higgs first passes a No. 1 or No. 2 Bowman's probe to prove the permeability of the duct. He then examines the inferior turbinates and treats any pathological condition of these structures. For him the operation of extirpation of the sac is extremely difficult, but he feels that when one is successful it is a most satisfactory procedure for both the surgeon and the patient.

Dr. Kistner said that ophthalmologists say that so great an authority as Fuchs acknowledges that nearly all cases have a residual epiphora. Doubts the feasibility of probing, with any degree of success, a canal the lumen of which is of variable caliber. If we had a distensible dilator we could get better results. He referred to the operation described by Yankauer in the December number of the *Laryngoscope*. This operator performs a resection of the inner wall of the duct above the inferior turbinate. Author of operation reports success in eight out of nine cases.

Dr. McCool described the procedure that he usually follows in cases of chronic dacryocystitis. When patient is first seen and disease is not too long standing, he has patient fill the orbital depression with normal salt solution and into this pool the contents of the sac are expressed. After removing this solution, cocaine and adrenalin are instilled and this is followed by argyrol 25%. If patient will submit, an attempt is made to inject argyrol solution into the sac through the lower canaliculus without slitting it. If this fails, and there is neither a mucocele nor a fistula, rapid dilatation after the method of Ziegler, using his bayonet shaped dilator, may be tried, or the sac extirpated. Extirpation of the sac is undoubtedly a

good operation and in the vast majority of instances capable of curing the disease. Occasionally it fails because some of the sac is left behind. You do get some epiphora in a few cases. He disagrees with Dr. Wright when he says that a healthy sac should be removed if its possessor engages in a hazardous occupation—one which subjects his corneae to the dangers of injury from flying particles of emery or steel. However, the faintest suspicion of a dacryocystitis in the same individual would undoubtedly call for the immediate performance of this operation.

Dr. French has never performed the operation, but believes it to be of distinct value. Feels, however, that she would prefer to treat by probing than by extirpation of the sac.

Dr. Nunn's attitude toward cases of chronic dacryocystitis is like many other surgeons—that they are tedious and unsatisfactory to treat. "If you have a grudge against anyone send him one of these cases." The operation as a rule is long and tedious and a general anaesthetic should therefore be used.

Dr. Wright in closing: Has never seen excessive dryness of the eye following this operation. He has never had an annoying epiphora following any of his operations, except one, and that not sufficient to warrant removal of accessory gland. He does not believe it possible to pass as large an instrument as the Ziegler dilator—3 m.m. in diameter—into the canaliculus without splitting it.

Dr. McCool reported a case illustrating the value of the tonometer. Man, aged 50, struck in the right eye with part of the chamber of a 38-caliber Colt revolver, which exploded while he was target shooting. Examination showed both lids swollen and ecchymotic. With the aid of fluorescein and the corneal loupe a careful examination of the cornea and sclera failed to reveal anything that looked like a wound of entrance. There was some blood in anterior chamber, which prevented a view of the lens and interior of the eye. Treatment was instituted and a guarded prognosis given. The following day the blood in anterior was absorbed and there was opacity on the posterior surface of the lens. Pain very much less than the day before. With the tonometer the tension of the unaffected eye was 15 m.m., while that of the injured eye was 8 m.m. The following day tension in good eye was 18 m.m. injured eye 10 m.m. Suspecting perforation, the advisability of hav-

ing an X-ray photograph taken was urged upon the patient, but declined. It would seem, therefore, that lowered tension, as shown by the tonometer, would be very suggestive of a perforation, and would make prognosis correspondingly grave. Case II. Disciform keratitis of some months' duration, complicated by an irido-cyclitis. At present there is slight pericorneal injection and some pain. Process in cornea shows some activity and there are numerous vessels approaching it from the limbus. Iris bound down to anterior capsule of lens in the shape of a vertical oval. Unable to appreciate with fingers a difference in tension between the two eyes. Tonometer registered 38 m.m. in affected eye and 23 m.m. in unaffected. Diagnosis, secondary glaucoma, for which iridectomy or trephining of sclera was advised.

Dr. Wright reported a case of furunculosis which presented some unusual and interesting features. Repeated furuncles in the left external auditory canal for three and one-half months. Finally succeeded in preventing recurrence by the use of saturated solution of Magnesium Sulph. Two weeks later applied for treatment for large furuncle in the right external meatus. This was incised and pus evacuated. Following day temperature rose to 102° , and there was intense pain in the ear. Next day pain more severe over antrum. Drum membrane intensely injected, but no bulging. Convinced, however, that there was mastoid involvement, and a simple mastoid operation was performed a few days later. Upper cells and antrum filled with pus, but lower cells were normal. Several days later a furuncle developed in the left ear. "Would it be possible," he asks, "to have a furuncle in the middle ear?"

Dr. Nunn said that years ago Dr. Eaton reported a case of mastoiditis caused by furuncle.

Dr. Weatherbee asked whether vaccines had been tried.

Dr. Wright replied that they had, but with no benefit.

JOSEPH L. MCCOOL.

TRANSACTIONS OF THE PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

FEBRUARY 13, 1913.

DR. WENDELL REBER IN THE CHAIR.

Complications During and After Cataract Extraction.

Dr. William Campbell Posey said that many of the complications which arise may be avoided by the development of skill in operating acquired by practicing upon the eyes of the

lower animals, before essaying the extracting of the lens from the human eye. Great care should be exercised in selecting proper instruments. A badly constructed speculum is responsible for many accidents. He preferred the Murdock. The cystotome must be sharp and dislocation of the lens during extraction and subsequent loss of vitreous may often be avoided by a skillful handling of this small but important instrument. He warned against dipping the point of the knife too deep into the angle of the anterior chamber at the point of counter-puncture. A well placed conjunctival flap hastens healing and prevents later complications. Loss of vitreous often occurs from gaping of the wound in consequence of the patient's being directed to look down too far. A skillful and experienced operator will have loss of vitreous in but a few cases. He deprecated the performance of the Smith operation on account of the loss of vitreous which it so often entails. He prefers the simplest manner of extracting with iridectomy. While most cases of infection arise from external sources, from germs in the conjunctiva or from unclean instruments or drops, endogenous causes operate at times, especially in gouty and diabetic cases. An active internal medication directed toward the sublying systemic cause, must always be joined with the local treatment in all such cases. Rise in tension is due either to a change in the nature of the intraocular fluids or to obstruction of the angle of the anterior chamber by iris, lens capsule or other mechanical cause. Division of the obstructing band can often be accomplished by a sharp knife needle. The blood which may fill the anterior chamber consequent upon iridectomy is seldom of consequence, but the massive hemorrhages which at times occur and are dependent upon ruptures and varicosities in the choroidal veins usually demands enucleation. With the first symptoms of that most dreaded of all complications, panophthalmitis, the lips of the wound should be cauterized and hot compresses applied. Mental disturbances arise on the 2nd or 3rd day after operation in nearly 10% of all cataract cases. The cause is largely psychic, dependent primarily upon impoverished brain cells in consequence of sclerotic vascular changes. Normal cerebration returns in a week or more, insanity arising only in cases who had manifested mental changes prior to operation.

Unusual Procedures in Cataract Operations.

Dr. William Zentmayer: Preliminary iridectomy may be performed either as a preparatory operation for the extraction

of a ripe senile cataract or an immature cataract either in a young individual or in the aged. In the first class of cases it is comparatively rarely done, in the second it is usually associated with some procedure calculated to induce maturation of the cataract and in the last class it may be done to avoid the greater danger of dense secondary when the combined operation is done. In this class the preliminary operation is not frequently done, as experience has shown that there is little cortical remaining at this time of life.

Ripening operations may be done with or without iridectomy. In the earliest, Foerster's, an iridectomy was combined with massage of the lens through the cornea, later Bettman. White and others did direct trituration by introduction of a spatula into the anterior chamber with which the lens capsule was stroked.

About ten years ago Tynen of Texas, who was performing capsulotomy as the first step in cataract operations, stated that he thought that at the extraction of immature cataract the lens escaped more readily. Some years later Homer Smith advocated preparatory capsulotomy for the purpose of ripening the cataract. His operation consists in making a crucial incision in the anterior capsule with a specially devised miniature scalpel and 24 hours later delivering the lens. Later Fridenberg modified the operation by two peripheral parallel incisions so that a capsulectomy could be done at the time of the extraction of the lens.

For the extraction of immature cataracts the Smith Indian operation is applicable. (Operation described.)

The use of corneal sutures to aid in early union of the lips of the wound was discussed. They were considered of value in cases where loss of vitreous was anticipated. The sutures should then be inserted before the section is made, the suture being of sufficient length that the loops may be drawn aside while the section is being made.

The advantages of having a complete conjunctival flap has led to the adoption of the unusual procedure of injecting a few drops of some sterile solution in the conjunctiva in the position of the counter puncture so that the point of the knife can be carried the required distance under that membrane after emerging from the corneal tissue. In making the puncture the point of the knife is entered under the conjunctiva before penetrating the corneal tissue. If the knife is brought out sub-

conjunctivally on finishing the section a complete conjunctival flap will have been secured. The recent Belgian method is ingenious and has but one objection, the danger of infection by the presence of two sutures. In operation the conjunctiva is freed from the upper limbus over the area included in the corneal incision and undermined for some distance. A suture is inserted at either end of the conjunctival flap and brought out on the bulbar conjunctiva at the limbus a short distance below the point where corneal incision starts, by tying the two ends of each suture the conjunctiva is drawn down over the cornea, completely covering the corneal incision. Couching of the lens might be necessary to give sight to an insane person with cataract or it might be called for in the presence of a virulent conjunctival secretion which had proved rebellious to treatment or in the presence of a dacryocystitis in which circumstances existed precluding extirpation of the sac.

Operations for After-Cataract.

Dr. Wendell Reber: The conditions which present "after-cataract" vary according as the healing of the eye has been complicated or uneventful. The simplest conditions with which you will have to deal is an eye which has healed easily. Ophthalmoscopically with a plus 7 to plus 12. Small opacities in the posterior capsule will be seen. For such conditions a T or crucial incision is done.

Another cause of "after-cataract" is a proliferation from the remaining lenticular cells. It will give rise to a denser mass to deal with. If there is lenticular matter to deal with it may become massed on the anterior capsule. These three conditions, however, are reasonably easy to cope with. When iritis or cyclitis follows an operation, it is a different story; it almost surely compels some manner of secondary operation. About 40% of operated cataracts present some degree of post-operative iritis. I do not speak of transient conditions, I mean the condition that begins to develop about the 6th day after operation. This in spite of a very careful extraction and the most careful treatment of the case afterward.

When the eye has quieted down completely after an iridocyclitis and has so remained for two to three months, instead of a simple incision, it will be necessary to do an iridotomy. This may be done with de Wecker's scissors or with Zeigler's iridotomy knife. With this instrument one can sometimes secure a very satisfactory pupil even though its edges be ir-

regular. It is a difficult operation to do. If the knife is introduced too far back one doesn't get as good a fulcrum as if the entry point is 2 m.m. in front of the limbus. The latest traction exerted on the iris and ciliary body the better. No bandage should be applied but atropin and argyrol (20%) instilled at once, ice compresses applied to the eye and a course of calomel administered internally. This will usually prevent recurrence of the post-operative inflammation.

All iridotomies and capsulotomies or capsulectomies should be done under artificial light with strongly condensed illumination. Careful study of the field of operation (before operation) under condensed light is imperative if success is to follow.

The users of capsule forceps (capsulectomy) agree that they render unnecessary a secondary operation on the capsule. Recent reports would lend much probability to this claim. This point is not yet absolutely proven, however.

DISCUSSION. Dr. Zentmayer said that in cases of dense inflammatory membranes he would try the Zeigler operation and if this failed he would do the operation devised, he thought, by Kuhnt. A narrow Graefe knife is entered at the lower third of the cornea one m.m., inside the limbus, the point is thrust through the iritis membrane at once, the blade is then carried parallel to and behind the iritic membrane until a point about one m.m., from the opposite limbus is reached: it is there brought out through the cornea and a downward incision through membrane and cornea is completed. The iris incision usually springs open giving a large opening, should it not have sufficient resiliency for this to result it may be grasped with forceps and brought out through the wound and there snipped off.

Dr. Reber: The suggestion encountered in many text books that "prolapsed vitreous should be cut away with scissors and the toilet of the wound then completed," has always interested and amused me greatly. Most frequently the vitreous is semifluid and shows a disposition to flow all over the field of operation. To attempt to abscise such vitreous is to my mind a fearful waste of valuable time. The average operator in the presence of vitreous loss is only too anxious to get the speculum out as quickly as possible and allow the eye to close. Usually the patient realizes something has gone wrong and becomes unruly. After the eye has been held closed a few moments they may regain their composure. Then if the lids

are very carefully opened and the corneal conformer I have described is introduced the situation is entirely under control; the iris may be returned and if so desired a corneal suture introduced. I have done this three times. There is nothing I know of that will afford the feeling of security thus gained. I am distinctly of the opinion that some day this will become an accepted procedure in ophthalmic surgery. Vitreous loss is admittedly the most formidable complication of the cataract operation and anything that promises prevention or control of this calamity demands our carefullest consideration.

D. FOREST HARBRIDGE, Secretary.

THE ROYAL SOCIETY OF MEDICINE.

SECTIONS OF OPHTHALMOLOGY AND NEUROLOGY.

At the meeting of these Sections on March 5th. under the presidency of Sir Anderson Critchett, C. V. O., the subject of discussion was disease of the pituitary body. Professor Schäfer opened with a very detailed exposition, aided by numerous slides, of the structure and functions of that body. He said the pituitary body was present in all vertebrates which had been examined, therefore it must be an organ of considerable morphological interest. Its development occurred as an extension of Rathke's pouch, which was an invagination of the buccal ectoderm towards the brain. This was met by a hollow downgrowth from the thalamencephalon, and the combination of the two into one organ formed the pituitary body. The gland consisted of three parts: (1) pars anterior, (2) pars intermedia, (3) pars nervosa. Usually it was separated into two parts, the anterior and the posterior lobes. Remarkable alterations occurred in the pituitary as the result of thyroidectomy, and similar changes seemed to result where atrophy of the thyroid ensued. The alterations after thyroidectomy included (1) enlargement of the pituitary body, (2) the presence of a colloid substance in the vesicles in the pars anterior and a great increase in that of the pars intermedia, (3) a great increase in the number of hyaline bodies in the pars intermedia and pars nervosa. It was not easy to explain these changes physiologically, because the functions of the two glands were not identical, though probably both were connected with sexual development: for in the case of removal of either there was a stunting of growth and sexual infantilism. Moreover, castration had been observed by most to be followed by hypo-

physial hypertrophy. The greatest enlargement of the pituitary body was found in giants and acromegalics; the skeleton of giants was characterized by a disproportionately large sella turcica.

The physiology of the pituitary body had been investigated experimentally by methods of both removal and addition, the latter by administration of extracts of the gland, and by implantation. The evidence following removal was conflicting. Young animals which survived extirpation had their growth retarded, and their sexual activity remained undeveloped. But some observers stated that total removal was not fatal, death, when it occurred, having been due to the complications of the operation. Mere injury to the pituitary might cause marked polyuria, but it disappeared after a few days. Possibly this was the explanation of the polyuria sometimes seen in association with fracture of the base of the skull. Feeding with fresh or dried gland substance was, normally, not attended with any obvious result, even in growing animals. There was certainly no retardation of growth, such as had been described. Attempts to graft the organ had usually been unsuccessful. Saline extracts of pituitary, injected intravenously, had a marked effect upon all involuntary muscles: they caused constriction of most of the blood vessels of the body, a powerful and unusually slowed action of the heart, the tone of which was increased, contraction of bladder, uterus and bowel, and the pupil of the excised eye in the frog was dilated. The substance producing these results was of a relatively simple chemical nature, was soluble in water, and dialysable, and was not destroyed by repeated boiling, nor by long keeping in a dried state or in a sterilized condition. It was insoluble in alcohol and ether. Intravenous injection of pituitary extract excited secretion in certain glands, such as the kidney, and in the mammary gland during lactation: there was dilatation of the renal arteries, though the effect on the general arteries of the body was constriction. The substance producing effects upon blood pressure, heart and kidney was contained only in the posterior lobe, and it had been found in the cerebro-spinal fluid. According to the observations of Ott, Scott and Mackenzie, the galactagogue hormone of the pituitary was also confined to the posterior lobe, and it was assumed to be identical with that which caused the other effects upon blood vessels, heart and kidney. The anterior lobe seemed related to the

general growth of the body, especially that of the skeleton; while the posterior, including the *pars intermedia*, probably promoted the contractility and increased the tone of plain muscular tissue.

Mr. J. Herbert Fisher commented on the complexity of function of the two portions of the pituitary body, and the supreme importance of the gland to life, and its interactions with other ductless glands. Colloid material was also formed, as in the case of the pituitary, by rare tumours which sometimes developed in the remnants of the post-anal gut. He also remarked on the fact that castration and oömorectomy caused some overgrowth of the pituitary body, while the hypophysis enlarged during pregnancy. He believed the climacteric was prematurely reached, or in the male impotence, by months and even years before other symptoms pointed to disorders localized to the hypophysis, and in this direction observations of gynaecologists might be valuable. Hypoplasia of the adrenals was also accompanied by retarded sexual development, while hyperplasia was associated with excessive development of secondary sexual characteristics. A case exhibited by Dr. Turney showed pituitary disorder with adiposity and abnormally raised blood pressure, undue pigmentation of skin, and liability to spontaneous bleeding. For diagnostic purposes, the ophthalmic surgeon worked chiefly with his perimeter in recognizing and watching pituitary disease. The typical condition was one of bitemporal hemianopia: though that statement did not cover the question. Cases had been recorded in which a central scotoma resembling that seen in tobacco amblyopia existed, but in which the extension of the scotoma resulted in bitemporal hemianopia. He did not see how pituitary tumours could press first at the anterior angle of the commissure; still X-rays were very serviceable for proving or negating the existence of bone erosion. Mr. Doyne had shown that hemianopia of the colour sense might precede that of the form sense, and give a guide to prognosis; and with that Cushing agreed. In a proportion of cases of pituitary body enlargement, homonymous hemianopia was a symptom in the earlier development of the case, but he was convinced that an evenly-balanced loss of the temporal field in each eye of simultaneous onset was the exception. Direct pressure on the optic chiasma, so glibly invoked, was far from being a satisfactory explanation of most of the cases. He asked whether neurologists believed that the

anosmia present in some pituitary cases could be attributed to involvement of the uncinate gyrus. He believed the visual phenomena were explicable by traction effects on the visual pathways as the tumour extended behind the chiasma and between the optic tracts in the inter-peduncular space. For operation, he favored a route through the fronto-temporal opening of the cranium. If this method were pursued, the free removal of the bone, and opening of the dura mater on the opposite side allowed more freedom for elevation and displacement of brain, and thus give more ready access to the pituitary region.

The debate will be continued on 12th inst.

C. DEVEREUX MARSHALL.

SECTIONS OF OPHTHALMOLOGY AND NEUROLOGY.

MARCH 12TH, 1913.

RESUMED DISCUSSION ON DISEASE OF THE PITUITARY BODY.

The discussion was resumed by Dr. Turney, who entered at length into a case which had been under his care, and whom he showed at the last meeting. The symptoms referred mainly to the posterior lobe. The patient was a lady aet. 25, who, until 1907, was in no way abnormal. Before that time her menstruation had been regular, but since then it had been entirely absent. Her friends remarked on her increasing stoutness, and during the last two years she noticed she bruised with unusual readiness, especially on the legs. She also had pain in the back, starting from a kyphotic curve in the upper dorsal region and traveling round the ribs. Mentally she seemed unaffected, and her sight remained good, except for the slight error of refraction which she had always had. Thyroid extract had been administered repeatedly, but had to be given up on account of palpitation. In spite of the obesity present, her weight was now less than formerly; her face was now fat and florid, there was no puffiness about the eyes. The hair was dry and somewhat scanty, but the eyebrows were present. The expression was bright, and the manner alert. Skin not pigmented, pubic and axillary hair scanty. The upper limbs were of normal size, but lower limbs and buttocks thin. The thyroid was normal in size and consistency. No evidence of enlarged thymus, lymphatic glands, or spleen. X-ray examination showed absorption of posterior clinoid processes. There

had never been increased intracranial pressure or involvement of the nervous system. In July, 1912, M. J. H. Fisher reported that the white, blue and red fields were not transposed, and there was no certain evidence pointing to the probable development of temporal hemianopia. On recent examination, surrounding four-fifths of the right disc there was now a sub-retinal exudation of glistening character and ill-defined limits; no blood there except two or three very fine spots on the white area; otherwise each fundus was normal. The blood pressure on admission was 200 m.m. of mercury, and it had remained at about that level ever since. There was a tendency to polycythaemia, without other blood changes. At one examination the red cells reached eight millions. There had been a spontaneous fracture of the sternum, between the manubrium and the gladiolus. The urine was normal, and there was no polyuria. The sugar tolerance limit was normal at about 120 grammes of laevulose. Professor Dixon had examined the urine, and found it to contain a pressor substance in considerable quantity; 10 c.c. of the urine injected into a cat raised the blood pressure 70 or 80 mm., whereas a similar injection of normal urine would lower the blood pressure nearly to the baseline. Dr. Dixon added that this patient's urine contained 100 times the pressor substance found in normal urine, and that it corresponded closely with the urines of cases he had examined of acromegaly. Extract of posterior lobe was given, at first subcutaneously, but this method had to be abandoned owing to the tendency to superficial necrosis. She showed no increased tolerance to carbo-hydrates. The presence of the pressor substance showed that the pituitary secretion was in excess. Dr. Turney discussed the case fully, his conclusion being that the patient had a pituitary-sexual-gland syndrome, the lesion being in the posterior lobe of the pituitary. A possible alternative was that there was a temporary failure of the element controlling carbo-hydrate metabolism.

Professor Dixon, F. R. S., detailed his findings in a man the subject of acromegaly for ten years. He had an enormous heart, but no rise of blood pressure. On injecting 1 c.c. of the urine into the cat the blood pressure went up, and the injection of 5 c.c. caused it to rise to 80 m.m. The active substance was urohypertensin. The man died suddenly, as a result of some extra exertion, and post-mortem the pituitary body was

found to be the size of a walnut. The heart weighed about three pounds.

Dr. A. Garrod, F. R. S., gave a description of a case in which myxoedema and acromegaly probably co-existed. The improvement under thyroid treatment left no doubt as to the thyroid defect. The evidence of acromegaly was less conclusive, a skiagram showed enlargement of the sella turcica.

Dr. William Hill discussed the best route for operative treatment of pituitary tumour. He did not favour that advocated by Cushing, preferring that used in submucous resection, and then taking the short, though dangerous, further step. The chief danger was that of wounding the optic chiasma. The Hirsch operation was simpler than that of Cushing, and Mr. Graham and he both found it gave good access to the tumour. He gave a word of warning as to the dangers of the operation, especially without exhaustive preliminary study.

Dr. Langdon Brown discussed the subject, and showed photographs of a case. Mr. Richardson Cross (Clifton) drew attention to the importance of the inter-relation of the various glands of the body in the economy, particularly ovaries, testes, pituitary, pineal, suprarenals, thyroid, thymus. He had found great benefit from the administration of thyroid and pituitary extracts. Dr. F. E. Batten and Dr. Grainger Stewart also took part in the debate.

C. Devereux Marshall, F. R. C. S., 112 Harley Street, London, W.

ST. LOUIS MEDICAL SOCIETY.

OPHTHALMIC SECTION.

JANUARY 8, 1913.

Report of Cases.

Dr. Clarence Loeb: I have two patients whom I desire to present this evening. (1) C. B., male, a carpenter, while hammering a nail on Jan. 3, 1913 was struck in his left eye. He is positive that it was the entire nail and not a piece of it or of the hammer which struck him. He was not rendered unconscious by the blow, but couldn't see with the eye afterwards, although his vision had been good previously. I saw the patient for the first time on Jan. 6th, at which time there was circumcorneal injection, an incised wound of the cornea and a contracted pupil, with some pain. After the pupil had been dilated, it was possible to see the lens. The anterior capsule was

intact, but the lens substance showed a number of opacities, arranged in a circle, very similar to those of a beginning senile cataract, but not so far peripherally. They have become larger in the few days he has been under my observation. I have not been able to obtain a view of the fundus, but do not believe there is a foreign body in the eye. I present the case because of the very pretty picture it affords of a beginning concussion cataract.

The second patient, Mrs. E. S., aged 54, whose vision has been steadily decreasing for two months, without any pain or other symptoms. The left eye was especially involved. I saw her first on Dec. 12, 1912. V. R. E.=1/15 increased to 1/16 by addition of +1.5S. V. L. E.=less than 1/30; no improvement by glasses. Fundus examination under homatropin: right eye shows a dark area in the macula, but no actual retinitis. However, above the macula and rather towards the disc, is an arch of 6 to 8 white dots, which are evidently the product of a retinitis. No hemorrhage. L. E. In the macula is a large, oval white plaque with a small amount of pigment above and below. Examination of the urine showed no albumin nor sugar, which examination was repeated today with the same result. No luetic history could be obtained and the Wassermann was negative. However, under the administration of K. I. the vision has increased to -V.R.E.=6/20, with +1.5S., V.=6/15 nearly V. L. E. 1/20 with +1.5S., V=1/20+. The exact diagnosis is in doubt, except for the diagnosis *ex juvantibus* of retinitis luetica.

DISCUSSION. Dr. Jacobs: I merely want to say that in a recent issue of the *Klin. Woch.*, there appeared a paper on "Retino-choroiditis" (Jensen) in which the author describes a condition which bears some resemblance to what we have seen here tonight. It strikes me that the location of these retinal lesions would possibly be in line with the condition described in this paper. The writer reviews the entire literature of this subject and reports 17 cases; he describes lesions which resemble, to a certain degree, those seen in this patient. Their location particularly is what impresses me as being similar. I would suggest that the matter be further looked into. The writer brought out the fact that no luetic or tubercular basis could be found. However, in his conclusion he concedes that when he finished he knew as little regarding the etiology (excepting the facts just mentioned) as when he started. He also

mentions the fact that recurrences, which were frequent, usually come at the site of the former lesion. It would be interesting to know, if this patient can be kept under observation, whether any recurrence takes place after these lesions clear up, and whether the conditions possibly belong in the category, retino-choroiditis (Jensen).

Dr. Green: Although this case does not have the clinical appearance of tuberculosis of the retina, I would suggest the diagnostic injection of tuberculin.

Dr. Loeb, in closing: This case was in a way similar to the one I presented about two months ago. A case which had the same character of white dots in the retinae but more pronounced than in this case. They formed almost a complete circle around the macula, which was unaffected.

Equivalent Values in Spectacle Lenses.

Dr. W. E. Shahan: Practically all the text books on ophthalmology treat the subject of lenses and the properties of lenses in quite a superficial manner. All distances are measured from the center of the lenses and all lenses are considered without thickness. Moreover, lens grinders and spectacle salesmen compute the powers of lenses in a simple arithmetical way. A lens with a plus 20d surface on one side and a minus 10d surface on the other is a plus 10d lens, and such a lens will be practically neutralized by a minus 10 lens held against its convex surface. But if such a lens is prescribed for a patient whose hypermetropic or aphakial defect is accurately measured by a plus 10 double convex lens, it will be found that the defect is over-corrected by about 2 diopters. This plus 10 meniscus lens has, therefore, an equivalent value of 12 diopters (for Bausch and Lomb glass where the refractive index of the Fraunhofer ray D is 1.5225, and ground with Bausch and Lomb tools, and the greatest diameter of the lens is 40 m.m.)

The simple rules which hold well enough for double convex and double concave lenses, fail increasingly with increasing power and change in form. This was shown to be due to two prominent factors: advancement of the second Caussion point along the axis of the lens in a direction away from the concave surface in collective lenses—and to absolute increase in power (of collective lenses) with increasing change in form. This was illustrated by diagrams and formulae. And the "equivalent value" of double convex lens in terms of a meniscus lens was defined as that double convex lens which, when put into

the same rim as that which held the meniscus lens, brings parallel rays to a focus at the same distance from the plane of the rim as the meniscus does. It was shown that all equivalent values could be accurately computed and charted so that when the usual defect is accurately measured with double convex or plano-convex lenses, the value of any corresponding meniscus can be read off without the labor of tedious computation. Such work is now being carried out and will be available in two or three months. The logarithmic computation is tedious and at least this much more time will be required for its completion. A method of computing the thickness of any double convex or meniscus lens when the diameter and radii of curvature of the two surfaces are known, was also explained in detail.

It will be realized at once from the above statements, that when visual defects are measured accurately with double convex or plano-convex lenses and the glasses are ordered in meniscus or toric form, the result will be an over-correction which will be small for weak lenses and increase to amounts which cannot be neglected as the lens becomes stronger. It is to render available for immediate practical use the advantages of diminished astigmatism of oblique pencils and flatter fields that graphs of equivalent values in spectacle lenses are being prepared. The intention is to prepare these for Bausch and Lomb glass where $N. D. = 1.5225$ and for American Optical Company glass where $N. D. = 1.507$ and arrange formulae for making the same calculations for any other variety of glass of which $N. D.$ is known.

It was also shown that meniscus lenses, equivalent to double convex lenses, have telescopic properties which the double convex lenses in the ordinary position do not have. It thus happens that visual cavity measured accurately with double convex lenses is somewhat greater with the corresponding equivalent meniscus or toric lenses, because of telescopic magnification. Emphasis was laid upon the fact that the ordinary neutralization test fails to discover these discrepancies in equivalent values.

DISCUSSION. Dr. C. Barck: This paper by Dr. Shahan interested me very much, and I want to congratulate him; more especially so, because mathematical subjects are rarely brought before this section.

His calculation of the thickness of a lens from the two known quantities, namely, the radius of curvature and the

diameter of the lens, is very clever. And in lenses of higher degree their thickness is no negligible factor, as is well known.

In regard to the second part of his paper, I beg to differ somewhat. It seems to me that he approached the subject from an erroneous premise. When calculating the respective foci from the positive and from the negative surface of a meniscus, he measured from the base-line (referring to the drawing) and proved that there was a difference. But if you measure from the center of the meniscus, as measured in the case of the biconvex lens, or if you place the meniscus upon the base-line, there will be no difference. In other words, the difference in focus is no inherent quality of a meniscus, but depends on its location. If I understood the tenor of Dr. Shahan's paper correctly, he seemed to assume the former.

Whilst dissenting in respect to his theoretical foundation, I fully agree with him as to this fact: that a meniscus, if placed before the eye, gives a different focus than a biconvex lens of the same respective value placed before the eye. (Example: a meniscus with a concave surface of 10 and a convex surface of 21 will have a different focus than a biconvex lens of 11). But the reason for this difference lies in the position of the lens in reference to the eye; the center of the meniscus is more remote from it than the center of the convex lens. If you place the latter further away from the eye, into the position of the meniscus, the focus will accordingly recede; and if you want to retain the first focus with the lens in the second position, you will have to increase its strength. As we are hardly able to change this forward position of a meniscus, it is necessary to bear in mind that a simple mathematical calculation will not do, if we want to substitute a meniscus for a biconvex lens. We must add one to two diopeters to the convex surface. Example: Plus 10 is not equivalent to a meniscus of "minus 6 and plus 16," but to a meniscus of "minus 6 and plus 17 or 18." The amount of the necessary addition increases of course proportionately to the increase of the concave surface: if the latter is of small degree, it is a negligible factor; if of high degree, it is very important. The exact amount of the addition in a given case depends upon the nearer or farther position of the meniscus from the eye, and this again depends upon the frame, the configuration of the face, etc. For this reason it is difficult to estimate the exact addition when testing with the frames of our test-cases.

This subject is certainly a timely one; for I believe that frequent mistakes are made with menisci, and furthermore, that we do not make use of them to the full extent of their utility. The only scientific communication which appeared in medical literature, so far as I know, is by Ostwalt. His first article appeared in 1898 and the second in 1900, in Graefe's Archives. Basing his investigations upon the distinctness of peripheral vision, he calculated the best concave surface of the equivalent meniscus for all concave and convex lenses from 1 to 20 diopters. For cataract lenses he found that the best concave surface is one of a minus 11. This would give for a plus 11 an equivalent meniscus of "minus 11 and plus 22" theoretically; and "minus 11 and plus 23 to 24" practically (after the necessary addition, as outlined above.) I copied his table, and keep it since then near my test case for ready reference. But there is one difficulty encountered. The opticians are provided by the large houses, like Bausch & Lomb, with two forms of menisci only: the one with a concave surface of minus 1.25 and the other with a concave surface of minus 6.0. The price for these is moderate. All the other menisci must be ground by the optician and the price is rather high, especially for cataract lenses.

"Meniscus" and "Periscopic lens" are synonyms. At present the latter term is more frequently used than the former and older one. Menisci were ground centuries ago by the Venetians, although their qualities were unknown. It was Wollaston, an English physicist, who discovered in 1803, that such lenses give a superior peripheral vision, and he introduced the term "periscopic" lenses for menisci and advocated their use. But his discovery fell into oblivion for a long time, and it is only in the last twenty years that their practical use came more and more into vogue. The mentioned essay by Ostwalt contributed to this.

Lately the firm of Bausch & Lomb sent a chart to many opticians and oculists, which contains three pictures. Uppermost a biconvex lens; then a lens with a concave surface of minus 1.25, which they call a periscopic lens; and finally a lens with a concave surface of minus 6.0, which they call a meniscus. I wrote them a letter and drew their attention to the erroneous distinction between these two terms, which they tried to introduce. Their reply was, that the trade uses these two words in order to distinguish readily the two kinds of

menisci, which are in the market. As a matter of fact, it was their firm which introduced the new and wrong definition of these terms into the trade. The question for us is, whether we will submit to the trade and prescribe only the mentioned two forms of menisci (with -1.25 or -6.0), sacrificing thereby our scientific conscience; or, whether we will prescribe the meniscus, which has the best concave surface and force the opticians to reduce the price for menisci ground to order.

As far as the use of menisci is concerned, many points are still unsolved and I am convinced that their usefulness will increase in the future. For this reason I feel indebted to Dr. Shahian that he has brought up this matter as well as for the interesting manner in which he has handled it.

DEFECTIVE VISION IN SCHOOL CHILDREN.

An examination of forty children from two public schools in New York City which has been made by Dr. William Martin Richards leads him to the conclusion that there are 78,000 children in the public schools of that city who have defective vision and that 80 per cent. of these defects could be remedied. The forty pupils which Dr. Richards examined were the worst that could be found in these schools; eighteen of them being so stupid that they were in ungraded classes, eleven were so stupid that it required three terms to do the work of one term and eleven were delinquent. All of the forty children had defective vision. They were fitted with proper glasses and after six months it was found that thirty-two of them had made astonishing progress. These thirty-two were under as many different teachers. Dr. Richards had submitted a report of his work to the Board of Education in which he recommends that the entire care of the school children, mental, moral and physical, be vested in one department with a single head and that that should be the Board of Education; that a sufficient number of doctors be trained to deal with all defects of school children who are at present in the category of ungraded, backward or disciplinary cases; that any child whose work is unsatisfactory for one term should be examined by one of these men and all defects of structure and habit corrected as far as possible.—J. A. M. A.

NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago, Savings Bank Building, State and Madison Streets, Chicago, Ill.

Recent optometry bills presented in the legislatures of Utah and Texas failed of passage.

Drs. Charles Adams and Charles J. Craythorn have been elected to the staff of Mercer Hospital, Trenton, N. J.

Dr. Scott Culbertson, an ophthalmologist of Vevay, Indiana, and former auditor of his county, died at his home in Vevay, February 13, aged 60.

The annual meeting of the American Academy of Ophthalmology and Otology will be held in Chattanooga, Tenn., October 27 to 29 inclusive.

Dr. James L. Thompson, for many years a prominent ophthalmologist of Indianapolis, Ind., died at his home in that city March 5th, aged 80.

The new St. Vincent's Hospital, Indianapolis, Ind., has been equipped with a special operating room for the eye, ear, nose and throat service.

Drs. L. R. Thomson, Wilson Johnston and C. A. Veasey, who are associated in special practice in Spokane, Washington, have taken new quarters, Suite 404 in the Paulsen Bldg.

The South Baltimore Eye, Ear and Throat Charity Hospital will begin to erect its new building April 1. The plans are under consideration now for a three-story building 65 by 90 feet.

A forger and check-writer recently paid his own penalty in Los Angeles. He destroyed his eyesight by plunging the blade of a pen-knife into each of his eyes, saying that his legal punishment was not sufficient.

Dr. Walter Baer Weidler has been appointed as Pathologist to the eye department of the Manhattan Eye, Ear, Nose and Throat Hospital to succeed the late Dr. Edward A. Oatman.

Dr. Thos. A. Woodruff of Chicago, who has served as Editorial Secretary of the OPTHALMIC RECORD since 1897, has resigned. His valuable services to the cause of American literature in this and other connections is well known to our readers and it will be difficult to fill his place. The best wishes of the RECORD staff go with the late Editorial Secretary.

As one of the results of the recent articles in the OPTHALMIC RECORD and elsewhere, drawing the attention of the golfing public to the dangers inherent in water-core golf balls, the United States Golf Association has issued and requested the posting in a conspicuous position of the following "Important notice and warning" to all the clubs on its register: "Owing to the fact that serious accidents have occurred in the past few years due to cutting open certain makes of golf balls containing acid and other sight-destroying compounds, the United States Golf Association warns all persons to refrain from this dangerous practice."

Dr. Watson Gailey of Bloomington, Illinois, who has been doing post-graduate work abroad, chiefly in Vienna, Prague and Berlin, has returned and will resume his private practice in Bloomington.

Dr. J. Frank Crouch of Baltimore has been appointed clinical professor of ophthalmology and otology in the medical department of the recently merged University of Maryland and Baltimore Medical College.

Elaborate ceremonies marked the laying of the Foundation Stone and also the opening of the Minto Ophthalmic Hospital in Bangalore City, India. The hospital was named after Lord Minto, viceroy of India, and was opened under the auspices of His Highness the Maharaja of Mysore on the 31st of January, 1913. The surgeon in charge is Dr. S. V. Ramas-

wamy Iyengar, who has spent many years in building up his organization, and who is to be congratulated upon having achieved the much needed hospital accommodations.

Philadelphia Polyclinic and College for Graduates in Medicine. Complete twelve weeks' course in diseases of the eye, ear, throat and nose, beginning Monday, March 24, 1913.

Thorough didactic and practical work in Refraction, consisting of three lectures a week by Dr. Thorington and a daily hour of practical work in refracting and measuring for glasses under a competent instructor. Operative work on animals' eyes and on the cadaver. Ample opportunities for practice in diagnosis and treatment furnished by the dispensaries of the Philadelphia Polyclinic and the Wills' Eye Hospital. Laboratory instruction and demonstration in the histology, pathology and bacteriology of the eye.

On the occasion of the Universal Exhibition at Ghent (April to October, 1913), the Belgian Society of Ophthalmology invites the foreign ophthalmologists to be present, on the 2nd and 3rd of August next, at the Scientific Conference which it is organizing at Ghent, "the City of Flowers and old Monuments."

The Board of the Belgian Society of Ophthalmology begs their colleagues from abroad who intend to make any communication at this reunion to forward its title and summary, type-written if possible, to Professor van Duyse, 65, rue Basse-des-Champs, Ghent, Belgium, before June 15, 1913.

BOOK NOTICE.

Sclero-Corneal Trephining in the Operative Treatment of Glaucoma, by Robert Henry Elliott, M. D., B. S. Lond., Sc. D. Edin., F. R. C. S. Eng., etc., Lieut.-Colonel, I. M. S. Superintendent of the Government Ophthalmic Hospital in the Medical College, Madras, and Fellow of the University of Madras, S. India. London: George Pulman & Sons, Limited, Thayer Street, Manchester Square, W.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXII

CHICAGO, MAY, 1913

No. 5, New Series

ORIGINAL ARTICLES

AN ANALYTICAL CONSIDERATION OF THE SYMPTOMS OF EYE STRAIN WITH SPECIAL REFERENCE TO THOSE SYMPTOMS CITED TO THE GENERAL PRACTITIONER.

ABSTRACT OF PAPER PRESENTED BEFORE INDIANAPOLIS
MEDICAL SOCIETY.

BY JOHN RAY NEWCOMB, M. D., INDIANAPOLIS.

The diagrams herewith presented illustrate graphically the tabulated symptoms presented to me by a series of five hundred patients. The age of these patients varies from five to forty-five years, and among the adults whose histories are included in the findings, the majority are of a class in which close work is excessive. The summarized histories are those of my private patients and in every case care was taken that only those symptoms were recorded which the patients gave without suggestion. In other words these are symptoms given to me by my patients as their reasons for consulting an ophthalmologist.

The several errors of refraction occurred, in point of frequency, in the following order:

1. Compound hypermetropic astigmatism....36.8%
2. Mixed astigmatism 25.1%
3. Compound myopic astigmatism.....21.1%
4. Simple hypermetropia 8.9%
5. Simple myopia 4.2%
6. Simple hypermetropic astigmatism..... 2.1%
7. Simple myopic astigmatism..... 1.6%

All forms of hypermetropia constituting 47.8%. All forms of myopia aggregating 26.9%, and mixed astigmatism representing 25.1%.

By referring to the charts herewith presented, several interesting facts are brought out. First will be noticed that in the great class of compound hypermetropic astigmatism there is 69.5% of all patients with this error, giving as a leading

symptom combined frontal and supraorbital headache and but 14.6% mentioning headache limited to the frontal region. Compare this with the compound myopic astigmatism in which class of refractive error there is no mention made of combined frontal and supraorbital headache and 68.2% cite frontal headache alone as a predominant symptom. By reference to the chart you will see that in no form of myopia is frontal combined with supraorbital headache mentioned. In other words, of 135 patients with myopia or myopic astigmatism, not one suffered with combined frontal and supraorbital headache. On the other hand, out of 239 patients with hypermetropia and its astigmatic forms there were 227, who gave as a prominent symptom the headache involving both frontal and supraorbital regions. Also note that in simple myopia and simple myopic astigmatism, not one patient complained of sick headache, sub-occipital, vertical, temporal, supraorbital or combined frontal and supraorbital headache. In compound hypermetropic astigmatism every form of headache is mentioned. I would also call your attention to the frequency of nuchal pain, the cheek rein sensation, which is found present in every form of ametropia, and in the highest percentage in the simple hypermetropic and simple myopic astigmatisms. In the majority of these patients relief from the cheek rein sensation has come with the wearing of proper lenses. The constancy of supraorbital, temporal and vertical pain in the Compound and mixed astigmatisms and their absence in the other forms of error is significant.

In the second summary chart, under "Rapid Ocular Fatigue" note the presence of high percentages in the hypermetropias and the low percentages in the myopias. On the other hand, "Tardy Accommodation" was found more frequently in the various forms of myopia than in the hypermetropias.

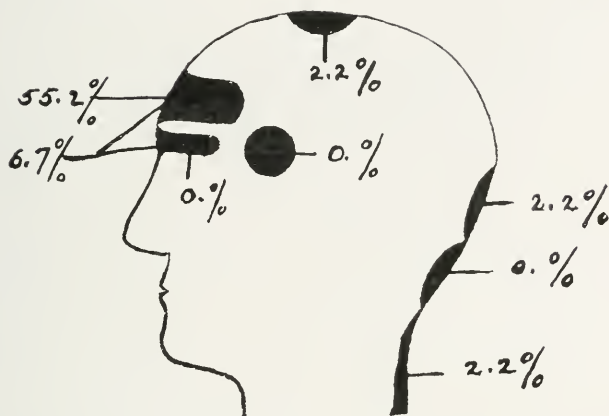
Other percentage comparisons might be made to advantage but it will require longer study, more careful tabulation and the analysis of thousands of case histories before the work shall have attained its full value, and I offer this simply as a preliminary report, hoping from time to time to report the results of more extensive investigation.

Simple Hypermetropia.

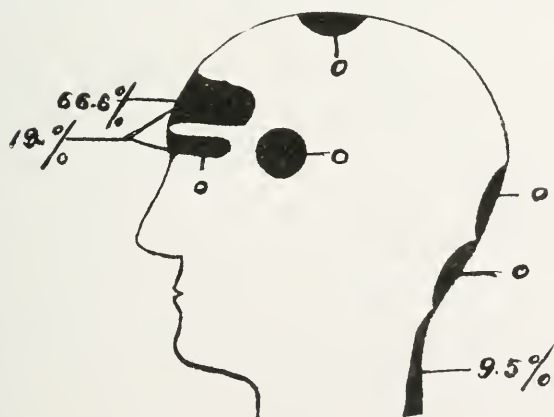
(Constituting 8.9% of errors in refraction in 500 cases.)

HEADACHES. (In order of frequency.)

Frontal	55.2%
Frontal and supraorbital.....	6.7%
Occipital	2.2%



Vertical	2.2%
Nuchal	2.2%
Supraorbital	0.0%



Temporal	0.0%
Sub-occipital	0.0%
Sick headache	0.0%

OCULAR SYMPTOMS MOST FREQUENTLY MENTIONED.

Rapid ocular fatigue.....	44.8%
Tardy accommodation	2.2%
Inadequate vision	4.4%
Ocular pain	22.4%

Palpebral irritation	27.0%
Increased lacerimation	2.2%
Photophobia	4.4%
Nausea	4.4%
Vertigo	0. %
Muscae volitantes	2.2%

Simple Hypermetropic Astigmatism.

(Constituting 2.1% of errors of refraction in 500 cases.)

HEADACHES. (In order of frequency.)

Frontal	66.6%
Frontal and supraorbital.....	19. %
Nuchal	9.5%
Supraorbital	0. %
Temporal	0. %
Occipital	0. %
Vertical	0. %
Sub-occipital	0. %
Sick headache	0. %

OCULAR SYMPTOMS MOST FREQUENTLY MENTIONED.

Rapid ocular fatigue.....	66.6%
Tardy accommodation	9.5%
Inadequate vision	0. %
Ocular Pain	9.5%
Palpebral irritation	66.6%
Increased lacerimation	0. %
Photophobia	0. %
Nausea	0. %
Vertigo	0. %
Muscae volitantes	0. %

Compound Hypermetropic Astigmatism.

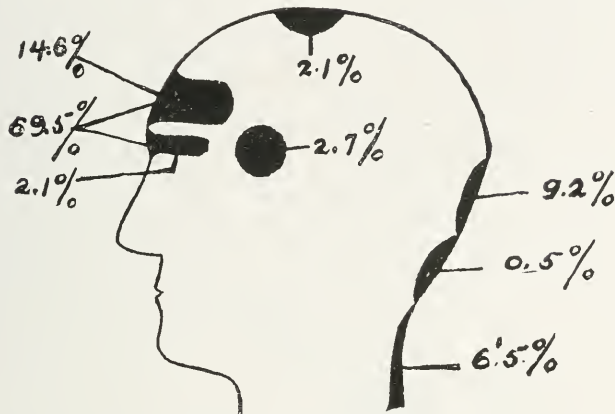
(Constituting 36.8% of errors of refraction in 500 cases.)

HEADACHES. (In order of frequency.)

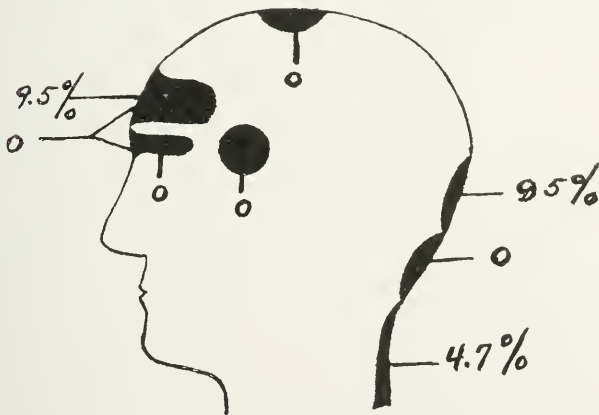
Frontal and supraorbital.....	69.5%
Frontal (alone)	14.6%
Occipital	9.2%
Nuchal	6.5%
Temporal	2.7%
Supraorbital (alone)	2.1%
Vertical	2.1%
Sick headache	1.6%
Sub-occipital	0.5%

OCULAR SYMPTOMS MOST FREQUENTLY MENTIONED.

Rapid ocular fatigue.....	41.8%
Tardy accommodation	2.1%
Inadequate vision	4.3%



Ocular pain	22.8%
Palpebral irritation	38.5%
Increased lacerimation	4.3%



Photophobia	3.3%
Nausea	0. %
Vertigo	2.7%
Muscae volitantes	10.9%

Simple Myopia.

(Constituting 4.2% of errors of refraction in 500 cases.)

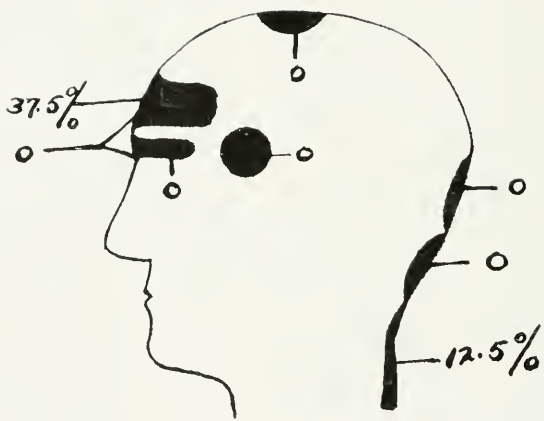
HEADACHES (In order of frequency.)

Frontal	9.5%
---------------	------

Occipital	9.5%
Nuchal	4.7%
Frontal and supraorbital.....	0. %
Supraorbital	0. %
Temporal	0. %
Vertical	0. %
Sub-occipital	0. %
Sick headache	0. %

OCULAR SYMPTOMS MOST FREQUENTLY MENTIONED.

Rapid ocular fatigue.....	19.0%
Tardy accommodation	4.7%
Inadequate vision	95.2%
Ocular pain	0. %



Palpebral irritation	23.8%
Increased lachrimation	0. %
Photophobia	0. %
Nausea	0. %
Vertigo	0. %
Muscae volitantes	0. %

Simple Myopic Astigmatism.

(Constituting 1.6% of errors in refraction of 500 cases.)

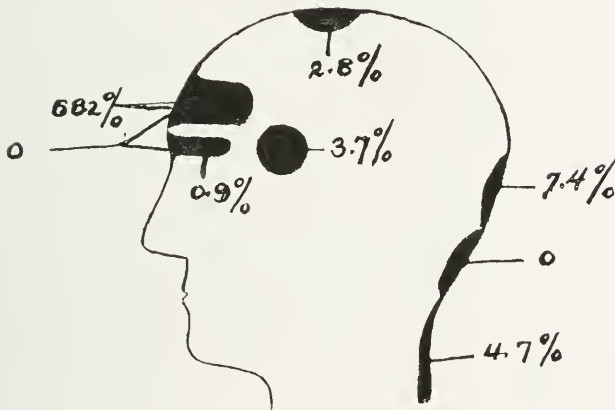
HEADACHES. (In order of frequency.)

Frontal	37.5%
Nuchal	12.5%
Frontal and supraorbital.....	0. %
Supraorbital	0. %
Temporal	0. %
Occipital	0. %

Vertical	0. %
Sub-occipital	0. %
Sick headache	0. %

OCULAR SYMPTOMS MOST FREQUENTLY MENTIONED.

Rapid ocular fatigue.....	12.5%
Tardy accommodation	0. %
Inadequate vision	37.5%
Ocular pain	0. %
Palpebral irritation	62.5%
Increased lacrimation	12.5%
Photophobia	25.0%
Nausea	0. %
Vertigo	0. %
Muscae volitantes	0. %



Compound Myopic Astigmatism.

(Constituting 21.1% of errors of refraction in 500 cases.)

HEADACHES. (In order of frequency.)

Frontal	68.2%
Occipital	7.4%
Nuchal	4.7%
Sick headache	4.7%
Temporal	3.7%
Vertical	2.8%
Supraorbital	0.9%
Frontal and supraorbital.....	0. %
Sub-occipital	0. %

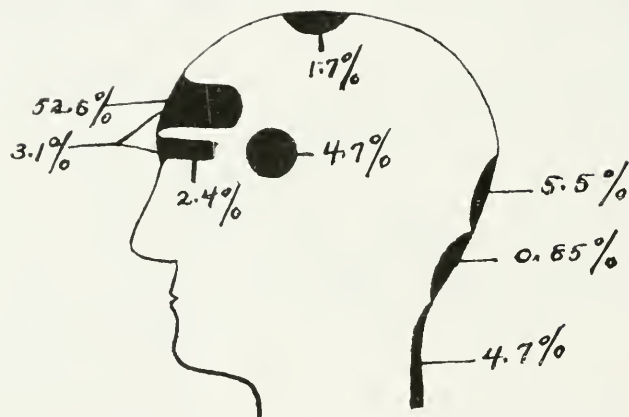
OCULAR SYMPTOMS MOST FREQUENTLY MENTIONED.

Rapid ocular fatigue.....	36.0%
---------------------------	-------

Tardy accommodation	7.4%
Inadequate vision	22.7%
Ocular Pain	16.1%
Palpebral irritation	37.9%
Increased lacrimation	3.7%
Photophobia	3.7%
Nausea	0. %
Vertigo	0. %
Muscae volitantes	4.7%

Mixed Astigmatism.

(Constituting 25.1% of errors of refraction in 500 cases.)



HEADACHES. (In order of frequency.)

Frontal	52.6%
Occipital	5.5%
Temporal	4.7%
Nuchal	4.7%
Frontal and supraorbital.....	3.1%
Supraorbital	2.4%
Sick headache	2.4%
Vertical	1.7%
Sub-occipital	0.85%

OCULAR SYMPTOMS MOST FREQUENTLY MENTIONED.

Rapid ocular fatigue.....	39.7%
Tardy accommodation	2.4%
Inadequate vision	9.4%
Ocular pain	17.5%
Palpebral irritation	27.9%
Increased lacrimation	7.2%
Photophobia	5.5%

Nausea	3.9%
Vertigo	3.1%
Muscae volitantes	3.1%

OCULAR SYMPTOMS MOST FREQUENTLY MENTIONED.

SERIES OF FIVE HUNDRED CONSECUTIVE CASES OF REFRACTION.	RAND OCULAR TITUS	TASSY	RECONSTRUCTION	IMBROGNI	VISION	OCULAR PAIN	PARASOL	IRRITATION	INCREASED	LEGUMINIA	PHOTOPHOBIA	NAUSEA	VERTIGO	MUSCÆ VOLITANTES.
SIMPLE HYPERMETROPIA	49.5	2.2	4.4	22.4	27.0	2.2	4.4	4.4	0	2.2				
SIMPLE HYPERMETROPIC ASTIGMATISM	66.6	9.5	0	9.5	46.6	0	0	0	0	0				
COMPOUND HYPERMETROPIC ASTIGMATISM	41.8	2.1	4.3	22.8	18.5	4.3	3.3	0	2.7	10.7				
SIMPLE MYOPIA	19.0	4.7	95.2	0	23.8	0	0	0	0	0				
SIMPLE MYOPIC ASTIGMATISM	12.5	0	17.5	0	62.5	12.5	2.5	0	0	0				
COMPOUND MYOPIC ASTIGMATISM	36.0	7.4	22.7	16.1	37.7	3.7	3.7	0	0	4.7				
MIXED ASTIGMATISM	39.7	2.4	9.4	12.5	27.9	7.2	6.5	3.9	3.1	3.1				

HEADACHES

SERIES OF FIVE HUNDRED CONSECUTIVE CASES OF REFRACTION.	FRONTAL	SPINO-ORBITAL	TEMPORAL	TEMPORAL	TEMPORAL	TEMPORAL	TEMPORAL	TEMPORAL	TEMPORAL	TEMPORAL	TEMPORAL	TEMPORAL	TEMPORAL	TEMPORAL
89 SIMPLE HYPERMETROPIA	6.7	55.2	0	0	2.2	2.2	0	2.2	0	2.2	0	2.2	0	2.2
21 SIMPLE HYPERMETROPIC ASTIGMATISM	19.4	66.6	0	0	0	0	0	0	0	9.5	0	0	0	0
36 COMPOUND HYPERMETROPIC ASTIGMATISM	69.5	14.6	2.1	2.7	9.2	2.1	0.5	6.5	1.6	0	0	0	0	0
43 SIMPLE MYOPIA	0	9.5	0	0	9.5	0	0	4.7	0	0	0	0	0	0
16 SIMPLE MYOPIC ASTIGMATISM	0	37.5	0	0	0	0	0	12.5	0	0	0	0	0	0
111 COMPOUND MYOPIC ASTIGMATISM	0	18.2	0.9	3.7	7.4	2.8	0	4.7	4.7	0	0	0	0	0
251 MIXED ASTIGMATISM	3.1	52.6	2.4	4.7	6.3	1.7	0.8	4.7	2.4	0	0	0	0	0

THE INTRA-CAPSULAR OPERATION FOR CATARACT AFTER THE METHOD OF PROFESSOR STANCLEANU, BUCAREST.

W. LIKELY SIMPSON, M. D. D. O. (OXFORD).

MEMPHIS, TENN.

(Illustrated.)

During a stay of several months in 1911-1912 in Europe visiting the different clinics I decided to visit the University eye clinic in Bucarest where Professor Stancleanu is in charge.

I was especially interested in going to Bucarest as I had read and heard so much of Professor Stancleanu operation for removal of the Cataract in the Capsule and it appealed to me as a method much safer but having all the advantages of the Smith operation.

The writer had the privilege of working under the personal direction of Professor Stancleanu from March 29th to April 23rd.



Professor Stancleanu did everything possible to make my stay pleasant as well as profitable. My stay continued through the holidays at Easter therefore the clinical material was somewhat slack for about one week otherwise there was an abundance of cataract cases and many more cases presented themselves at the clinic for operation than there were beds to be had.

For two or three days before operation the cases are thoroughly studied especially as to the condition of the conjunctiva, lachrymal apparatus and the condition of the nose. The lachrymal sac is washed through into the nose once daily before operation and if obstruction, etc., exists an extirpation or washing of the sac or tying of the canaliculus before operation is done as indicated. The eye brow and lashes are cut short before being sent to the operating room. Just before operating the lids and skin about the eye are washed with soap but not the conjunctival sac. The soap is washed away with a weak cyanide solution of mercury, one four thousand per cent. The conjunctival sac is also washed with this solution but no extensive washing of the conjunctiva is made.

None of the ordinary lid retractors are used, as Professor Stancleanu thinks it much safer to have the lid under control of the assistant. This is accomplished through a double hook retractor. Figure No. 1, placed under the upper lid, holding it well away from the eye ball and through the thumb of the assistant on the lower lid. In this operation the assistant has much to do towards bringing about a good result. The assistant should know what to do at all stages of the operation without being directed.

Professor Stancleanu does not depend upon daylight

which is variable, but always operates in a dark room with a stationary electric light.

The incision in the cornea is a trifle larger than the ordinary. The puncture and counter-puncture are made well back in limbus and the incision is finished just at the anterior edge of the limbus with a small conjunctival flap, giving sufficient opening for any cataract to be removed without traumatism to the edges of the wound or posterior surface of the cornea.

The ordinary iridectomy is now made or sometimes iridotomy, after the method of Monalesco.

The next step in the operation is the one in which this operation differs so markedly from all other cataract operations. It is through this procedure that a black pupil without secondaries is obtained and at the same time the necessity for



hard pressure with its complications is removed. This step consists in the grasping of the anterior capsule of the lens by means of a capsule forceps, Figure No. 2. These forceps have no teeth to tear the capsule and the capsule is grasped not with the end of the forceps, but at the most prominent part of the curve. The forceps are placed into the anterior chamber closed and sideways and after getting them into the pupillary area they are opened up perpendicular to the surface of the capsule and by slight pressure backward a bite of the capsule is taken and now movements are made from side to side and up and down, thereby rupturing the zonular fibres. The operator then has the sensation that the lens is loose as the zonule is torn. The forceps are now opened and removed from the eye. About one to three firm, steady movements in each direction is all that is necessary.

Some have made the statement that the anterior capsule would be torn by such a procedure, but this is not so, according to the statistics of Stancleanu and the cases I saw. I can not think that the capsules are any different in cataracts in Roumania than in any other part of the world.

If the capsule is torn as it is, at times, in any method, then as much as possible of the capsule is removed and the operation goes along as in the ordinary way.

After the lens has been loosened by the capsule forceps, then continuous pressure with a spoon over the cornea, slightly

below the center is made with slight counter pressure above the wound. As the lens in its capsule comes through the incision it is followed by the spoon from below. As a general thing without allowing the lids to close the iris is replaced so as to limit as much as possible opening and shutting of the eye.

Professor Stancleanu says the older the patient is the easier it is to extract the lens by this method and that in young people the extraction in the capsule is more difficult.

There are cases in which it is impossible to remove the lens in the capsule, as for instance when the capsule is very delicate and is torn by the least movement of the capsule forceps, and if this accident does happen, at the same time, that part of the capsule in the bite of the forceps is removed and the ordinary expression is made.

There are a few cases in which the capsule is so firmly attached to the fossa patellaris that it is impossible to remove the lens in its capsule. Of course if posterior synechia are present this procedure would be contraindicated.

The statistics of Professor Stancleanu up to December 1911, showed the fifty-seven per cent of all cases operated upon were extracted in the capsule, but I must say so as to be fair to Professor Stancleanu that the statistics include all the cases operated upon by general practitioners and army officers who come to the clinic with practically no knowledge of the eye and only stay, as a rule, one month and these Doctors do not try the intra capsular method but are instructed to remove the anterior capsule with the capsule forceps with teeth, therefore these cases should really not be included in these statistics. These statistics also include, of course, the cases which are operated upon by those doctors, oculists, many times only just beginning the study of the eye, who visit the clinic. If only Professor Stancleanu or the regular assistants operated as in most clinics the figures would certainly be much higher as to the percentage of intra-capsular removals.

During my stay at the clinic twenty-four cataracts were operated upon. Sixteen cases were removed in the capsule and in four cases the intra-capsular method was attempted but was finished in the ordinary way and in four cases the operation was made by doctors who had never done a cataract before and who did not use the capsule forceps of Professor Stancleanu, therefore these four cases should not be included in the cases where the intra-capsular operation was tried.

I did ten operations during this time, removing seven in the capsule and three with rupture of the capsule. In my first case I made the incision too small and while trying to enlarge it with the cataract knife I incised the capsule, therefore had to be satisfied with removing the cataract in the usual way. In one of my cases I grasped the anterior capsule with the end of the capsule forceps, which is to be guarded against as this will nearly always tear the capsule as it did in my case.

Considering the operation from all standpoints, it seems to me that it is a safe procedure not endangering the eye more than the usual operation and at the same time giving a black pupil with no after cataracts necessitating discission. It also does away with the cortex which so often gives trouble in the usual operation. The danger of Iritis and Irido-cyclitis is certainly much less if the lens can be removed in its capsule.

Professor Stancleanu does not say that all cases of cataract can be extracted in the capsule, but that a large percentage can be and when the capsule is torn by the forceps, etc., that the result is the same or better than in the ordinary operation as a great part of the anterior capsule is removed in the bite of the forceps.

Since my stay at the clinic of Professor Stancleanu he writes me that he has tried these capsule forceps in quite a number of immature cataracts with very good results.

It seems to me that these forceps of Professor Stancleanu are not as wieldy as if they had a longer handle and I have discussed this matter with some of my friends and have had made the same forcep with a full length handle. I believe the longer handle will give a better control of the forcep.

I present this paper as it seems to me that this procedure is a step forward in the rapid progress of Ophthalmology and I hope some, if not all of you, will try the procedure.

(This forcep can be had of V. Mueller & Co., Chicago.)

EYE UNCONSCIOUSLY INJURED.

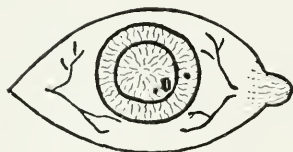
S. MITCHELL, M. D.

HORNELL, N. Y.

The fact that very serious injuries to the eyes sometimes do occur, and the recipient be wholly unconscious of the injury is affirmed by the experience of most ophthalmologists. That such accidents are confined almost entirely to mechanics

who work in metals, is also a well-known fact. Small splinters of steel, separated from the head of the hammer, or from the metal which is being worked upon, by a quick well directed blow from the hand of an expert mechanic, is propelled through space with nearly the same velocity and precision as a projectile from a modern rifle. The heat generated by the blow that detaches the splinter, is sufficient to perfectly sterilize it, and the resulting wound is equally aseptic as one made with an instrument carefully sterilized by modern methods.

Hence it is not surprising that a busy workman, who is accustomed to have small particles of foreign material fly into his eyes many times each day, could unconsciously receive a wound to one of his eyes that might prove fatal to vision and ultimately lead to loss of the eyeball.



With these few preliminary remarks I would like to relate the particulars of a case that will illustrate the point I have tried to bring out in this paper.

Thomas F. —, aged 38, a machinist employed in the Curtiss Aeroplane Works at Hammondsport, N. Y., consulted me November 12, 1912.

He said that for the past four months he had noticed a growing dimness of vision in his left eye. Before making any examination of the eye at all, he was given an opportunity to relate all of the events connected with the failure of vision. He said it was caused by "straining" the eye while looking through the cylinders of the aeroplane motors. Some parts of his duties required that he should examine the interior of each cylinder, while it was held up before a strong light. He thought that the highly polished surface of the interior of the cylinder, reflected the light so strongly into his eye as to cause "the sight of it to grow dim."

He was very positive in telling me that at no time did he ever receive any injury to his eye, by flying fragments of iron or steel, while hammering or drilling such metals.

His vision was as follows:

V. O. D. 20/30 W+50D Cyl. axis $15^{\circ}=20/20+$

V. O. S. 20/100—no improvement with glass.

The media and fundus of the right eye was in every way normal, and there were no corneal scars or opacities on either eye.

The pupillary reflex was active and normal in both eyes. There was a faint grey tint to the pupil of the left eye, when examined by focal illumination, that indicated an opacity of the crystalline lens.

At a subsequent examination in the dark room, the ophthalmoscope showed this to be the condition.

There was a small dark spot, about one millimeter in diameter on the nasal side of the iris of the left eye. It was at first thought to be simply one of the physiological pigment spots, so commonly seen on the irides of eyes under observation. Its presence was regarded to be of no particular significance, until after the pupil had been partly dilated by means of a drop of homatropine solution, when at the second ophthalmoscopic examination, the supposed pigment spot was seen to be a small aperture in the iris. Furthermore, the enlargement of the pupil enabled me to discern a small dark object, apparently two millimeters long by one millimeter wide imbedded in the crystalline lens. It was situated a trifle above the aperture in the iris, but in line with it perpendicularly.

By the accompanying sketch, I have attempted to illustrate the site of the aperture in the iris, also the location of the dark mass in the lens. Although my patient, who is a bright and intelligent mechanic, has no recollection of receiving an injury to his eye, I am fully satisfied that the opacity of the crystalline lens of this eye is due to the traumatism occasioned by the entrance into it of a foreign body; presumably a fragment of steel or iron, projected there in the manner above described.

REPORTS OF SOCIETIES

CHICAGO OPHTHALMOLOGICAL SOCIETY.

THE REGULAR MEETING OF MARCH 17, 1913.

DR. WILLIS O. NANCE, PRESIDENT IN THE CHAIR.

Brown-Séquard Paralysis.

Dr. George W. Hall exhibited a case of Brown-Séquard paralysis, showing ocular involvement of the sympathetic nerve. The patient gave an indefinite history of specific trouble acquired some years ago. His recent affection began suddenly on the 10th of August, 1912. While standing, about 4 o'clock in the afternoon, he suddenly became paralyzed on the left side, with complete loss of sensation. A week before, he had had slight loss of sensation in the back of the neck which he thought was due to a cold or draft playing upon the neck. Between times there was no disturbance whatever. For a while he had a slight pain in the back of the neck, but this soon disappeared. He was admitted to the County hospital August 14th, at which time he was in a worse condition than now. He then had marked ptosis of the right eye.

A difference could be seen in the palpebral fissures of the two sides. There were also narrowing of the right pupil, and a sunken condition of the eyeball which, though slight, was sufficiently manifest. Lumbar puncture disclosed an increased number of lymphocytes in the spinal fluid, with a slight reaction to the Nöguchi test. Put upon mixed treatment, he showed considerable improvement. At the present time he has practically no sensation on the right side of the face—an area corresponding to the distribution of the sensory portion of the fifth nerve—but, with this, there is no involvement of the motor portion. When he closes the mouth the masseters contract equally on both sides, and there is, in fact, no evidence at all of motor disturbance of any sort about the right side of the face. The right sclera shows marked anesthesia. He has a complete Brown-Séquard syndrome on the left side: loss of temperature and pain sense, with presence of tactile sense. All these facts show that the lesion is located in the lower cervical and first dorsal portion of the cord. It is not unusual to find this sympathetic involvement with external lesions, that is, with tumors, and so on. The eye syndrome is connected with the process in the spinal cord, and is not due to an external condition in the sympathetic ganglia.

DISCUSSION. Dr. George F. Suker said it was extremely rare for the lesion in the spinal cord proper to involve the sympathetic. The rapid sinking in of the orbit and narrowing of the palpebral fissure were accentuated by the involvement of the fifth nerve. The perspiration on that side of the cheek had been markedly reduced. In looking up the literature he had not found a case of lesion of the sympathetic that presented this symptom complex. If the attack happened, as in the case of Dr. Hall, from a hemorrhage in the lower cervical and upper dorsal region it behooved the ophthalmologist, when a patient consulted him, not to jump to the conclusion that the lesion must be in the superior sympathetic ganglion; it might be low down, and one should make a careful examination of the fifth as well as the sympathetic arising from that area.

He asked Dr. Hall whether he examined the eye grounds to determine whether there was enlargement of the retinal veins as compared with the other side.

Dr. Hall answered that the man's condition had improved; that the pupil was not nearly so narrow or small as it had been. He had better use of the eyelids than formerly, but as to whether complete recovery would take place it was hard to say. Improvement was gradually taking place.

Relief of Eye Strain in High Astigmatism by the Use of a Different Axis of the Cylinder for Distance and Near.

Dr. C. C. Darling stated that of late he had seen two cases of high astigmatism in which the patients received a great deal of relief by having their cylinders set at a different axis for reading and distance.

The first case was a man, fifty-one years of age, who had a high mixed astigmatism. He was unable to read for more than a few minutes at a time without his eyes and head aching and print blurring. He was wearing R. E. sph. $-1.75 = \text{cyl. } 4.50 \text{ axis } 120$, L. E. sph. $-1.50 \text{ cyl. } +5.00 \text{ axis } 60^\circ$ with a sph. $+2.00$ added for reading, the distant correction giving him normal vision in each eye. He also had about a dozen prescriptions for glasses; some, he said, were about as good as the ones he was wearing, and others he could not wear at all.

He found that his glasses were what he should have for distance, but when testing his eyes at the reading distance he found by trying one eye at a time he could see much better

if the cylinders were rotated out 5° in the right eye and 10° in the left from the axis he had found best by monocular test for distance. These were ordered and he reported perfect comfort of his eyes for distance and near since the change, now over 8 months.

The other case Dr. Darling reported was a young lady of 25, the left eye being amblyopic as a result of convergent strabismus. She obtained 20/25 vision with a sph. $+1.00$ cyl. $+5.50$, axis 115° , which he ordered. Three weeks later she returned saying she could only read a short time with her glasses. He then tried turning the axis of her cylinder out while she looked at fine print held at the reading distance; she found this to be more comfortable and the print was also clearer. He again tried her distant vision and she accepted the cylinder as before for distance. She reported being able to read with comfort with the special reading glass in which the cylinder was placed 10° different from her distant lens.

The amount of torsion which takes place in normal eyes has been measured by different methods by many men, and tables have been given by some to show its amount when the eyes are in different positions. These vary somewhat, but Howe believes they are as constant as the measurements of accommodation, convergence and other physiologic acts. The amount of torsion depends upon the amount of convergence and accommodation which is exerted, and also on the position of the plane in which the visual axes lie.

DISCUSSION. Dr. H. W. Woodruff asked whether it was a monocular or a binocular test for torsion.

Dr. W. Franklin Coleman said he had followed the ophthalmic literature since 1870, and had seen nothing on the subject except a paper that he had read before the Chicago Ophthalmological and Otological Society, February 8, 1887. He purposed to review here only two cases by way of illustration. His own experience in most cases shows that the refractive error, unlike Dr. Darling's cases, was quite moderate: although recently he had had a case of 15 D. of myopia with $3\frac{1}{2}$ D. cyl. in which, in one eye at least, if not both, speaking from memory, the axis of the glass for reading differed 30° from that accepted in distant vision.

In 1883 a patient, aged 37, asthenopic, showed under homatropin right eye $+36$, $75^{\circ} = 20/20$. Under accommodation the right accepted -36 , at 180. The patient reads

best with $+36$ at 75, which relieves all the symptoms. This axis varies 15° from the axis of the $+$ glass accepted under accommodation.

In the second case, aged 37, November, 1883, the patient could only read half a newspaper column without severe eye pain. Under homatropin the cylinder accepted was $+36$ at 15° right eye. Under accommodation -48 at 120. The left eye $+36$ at 165 under homatropin and -48 , 60. The axis for reading distance in the right eye varies 30° from the glass for distant vision under accommodation. The left eye, when reading varies 15° from the distance glass under homatropin; there is also a variation with a distance glass under accommodation.

In prescribing the strength and axis of a cylinder, he has always followed Burnett's advice in his book, *i. e.*, to give what the patient accepts under accommodation.

Another case from memory is that of a lady, the mother of an oculist. For her he prescribed reading cylinders at a different axis from the distance cylinders. Having lost her glasses, she was 20 years later examined by two oculists without satisfactory results. He was then written to for the old prescription, and the glasses made in accordance with it gave the relief desired.

In attempting to account for the acceptance in reading of a different axis, we might suppose that the ciliary muscle acted in convergence in certain meridian, as Dobrorowski proved is possible to compensate for or to change the axis of the corneal astigmatism, but since the changed axis in reading usually corresponds more nearly with the axis of the distant glass accepted under accommodation, it is more likely that the change is due to the rotation of the eye on its antero-posterior axis; that is to say, if the nasal end of the horizontal meridian is moved downwards in reading, it would be due to the action or overaction of the superior oblique muscle. On the other hand, if the nasal end of the meridian is moved upwards, it would be due to the overaction of the inferior oblique.

In conclusion, we all should test the reading vision under glasses of all our patients, and if it is not satisfactory as compared with distant vision, we should rotate the cylinder to the most acceptable axis for reading.

In answer to the president's question of how many cases

the speaker has seen, he would say conservatively, from memory, at least a dozen, but the majority of these patients he saw in his earlier practice, and he is afraid that the reason why he has not found more in his later practice is simply that he, like his confrères, do not see what they do not look for.

Dr. Darling, replying to Dr. Woodruff, said he tested one eye at a time at the near point. After the cycloplegic had worn off, he could find the axis cylinder for distance. Then the patient could read, and he often took a different axis for reading. In the other case the doctor did not give a different axis for distance and reading, but made a post-cycloplegic test, and in place of making a monocular test, he tested both eyes for distance at the same time, and found that the patient felt easier if he took a different axis or monocular test, correcting the cyclophoria, and not torsion. The amount of torsion ordinarily for reading distance is $1\frac{1}{2}$ or 2° . When a man converges and looks up, he averages about 15° of torsion. If he looks up there is a difference of 15° between the vertical meridian and axis of it than if he were looking straight ahead.

Syphilis of the Eye and Its Appendages.

Dr. Alfred Murray discussed the variations in the ocular manifestations of hereditary and acquired syphilis. His remarks were illustrated by numerous stereopticon slides, showing parenchymatous keratitis, the fundus changes of congenital syphilis, and Hutchinson's teeth. As to the teeth, the incisors, canines and molars were mostly involved. He also showed pictures of cases of interstitial keratitis, disseminated choroiditis, chancre of the lip, chancre of the lid margin, gumma of the sclera, syphilitic iritis (with the synechiæ which usually develop in the secondary stage), condyloma of the iris, gumma of the iris at the ciliary margin, neuroretinitis, choked disc, etc.

Syphilis of the Central Nervous System.

Abstract: Special reference to the (a) spinal fluid, (b) reflexes, (c) ocular manifestations, (d) early diagnosis of parasyphilitic diseases illustrated with stereopticon. By invitation.—Dr. George W. Hall, President Chicago Neurological Society.

Dr. George W. Hall referred to a case he presented before the Chicago Neurological Society about two years ago. The patient presented the Brown-Séquard syndrome the same as

the patient shown tonight. That patient also showed an involvement of the cervical sympathetic due to a central lesion in the spinal cord and not to peripheral nerve involvement.

Within the last few months Dr. Hall has had the privilege of observing two cases of cervical rib in which there was involvement of the cervical sympathetic nerves. One case, operated on by Dr. Kanavel, showed an involvement similar to that of the patient exhibited tonight, the sympathetic on the right side being affected by pressure of the cervical rib. Since the operation the pupil has almost regained its normal size, and the narrowing of the palpebral fissure has disappeared and the patient is rapidly improving. The other case, one of Dr. Gill's operated on by Carl Davis, had narrowing of the pupil with slight narrowing of the palpebral fissure, and paresis of the vocal cord on the affected side.

Dr. Hall, after showing several slides illustrative of syphilis of the nervous system, spoke briefly on the early diagnosis of brain syphilis. He said that ptosis or involvement of the third nerve is found early in cases of brain syphilis, as the optic nerve and the third nerve are especially involved in syphilitic gummatous meningitis. When one sees such involvement of the third nerve or perhaps of the sixth, coming on suddenly in adults, the first thing he thinks about is syphilis. In addition to there may be general symptoms of tumor, such as nocturnal headaches, vomiting, dizziness, diplopia, etc. If, in addition to the ocular involvement and other symptoms, there is an increased number of lymphocytes in the cerebrospinal fluid, as determined by lumbar puncture, with the presence of globulin, then, with or without a specific history, we think immediately of the possibility of cerebrospinal syphilis. We do not expect to find the Argyll-Robertson pupil in brain syphilis, although it may occur.

One of the early symptoms of tabes is a disturbance of the tactile sense across the chest in the region of the nipples and perhaps extending along the ulnar portion of the arms. The beginning of the disease in the posterior root ganglion and its extension later into the dorsal columns of the cord, would explain why the early symptoms of tabes are sensory in character—the bladder symptoms, the lancinating pains, the frequency of urination or slight dribbling of urine. The loss of knee-jerk, for the same reason, occurs early in cases of tabes. Another important sign is the so-called invisible ptosis, in-

dicated by a mere transverse wrinkling of the frontalis muscle. The eye symptoms are early symptoms of tabes. In the absence of the Argyll-Robertson pupil, there are three other conditions to be observed: first, the irregularity of the pupil; second, the inequality of the pupils, and, third, the sluggish reaction of the pupils to light. In an adult with a specific history, showing such conditions of the pupil, and with a history of periodical attacks of vomiting, gastric crises, we may think of an early tabes. Such symptoms, with loss of knee-jerk, or with a band of hypæsthesia across the chest, such as we have mentioned, would speak strongly for the presence of tabes. Optic atrophy may be one of the early symptoms observed by the ophthalmologist. We could mention a great many such combinations which would lead to a diagnosis of tabes, and which we very frequently see in our clinical work. Occasionally we get a complete internal ophthalmoplegia, but this is comparatively rare.

The diagnosis of general paresis sometimes depends on early eye symptoms. The Argyll-Robertson pupil may be one of the first things to attract our attention in the diagnosis of parietic dementia. We find normal or increased knee-jerks in cases of general paresis unless we have a tabo-paralysis to deal with. If a patient shows increased irritability, according to his wife, and has a tendency to forget business engagements, is careless or peculiar about his dress, exhibits irregular, unequal and sluggish pupils and perhaps exaggerated knee-jerks, then, whether or not there be a specific history, think very strongly of parietic dementia. If, making lumbar puncture, we find an increased number of lymphocytes in the spinal fluid, we make the diagnosis without difficulty.

The Present Situation in Syphilis.

Dr. William Alden Pusey (by invitation) referred to the development of the arsenical chemotherapy, which Uhlenbuth began and which Ehrlich carried forward so amazingly by the introduction of salvarsan in 1909. He said that these fundamental discoveries constituted an epoch in the history of syphilis, that they produced a complete recast of the methods whereby that disease was managed.

The great additions which had been made by these improvements were: 1. Diagnosis by demonstration of the spirocheta pallida. 2. Diagnosis by the Wassermann reaction. 3. The use of the Wassermann reaction as a criterion of the

effect of treatment. 4. Diagnosis by Noguchi's cutaneous reaction. 5. Prophylaxis by inunction of 33% calomel ointment within a few hours after infection. 6. Treatment by salvarsan and its derivatives.

One who had to do with the treatment of syphilis has never had a greater responsibility put upon him than by the salvarsan question. The claims for salvarsan had been so strong, the sponsors for it so high authority, that it had been no easy task to exercise restraint in administering this remedy; yet there were many considerations causing one to hesitate at its heroic administration, and which raised serious questions concerning the sum total of its usefulness.

Salvarsan had proved less toxic than the organic arsenic compounds of which it was the successor; but one must immediately add that it had not been found as safe a remedy as had been hoped. It had not proved to be wholly parasitotropic and free from dangerous organotropic and neurotropic qualities—to use more of the terms for which we are indebted to Ehrlich. On the contrary, it had been shown again that arsenic is still treacherous and that, combine this drug as we may, it is, when used in quantity still dangerous. The minor disturbances from its use—fever, nausea, vomiting, diarrhea, prostration, headache, low blood pressure, temporary cardiac disturbances, transitory albuminuria and the like—may be dismissed with brief courtesy. Some of them are important as suggesting contraindications to the drug, but they are of no practical importance in so serious a problem as the cure of syphilis.

There can be no two opinions as to the specific action of salvarsan upon the active lesions of syphilis. It is a powerful symptomatic remedy. In rapidity of action it surpasses, in many lesions, mercury or mercury and iodides; in others, it merely equals or is inferior to these older remedies. In early syphilis it has a very quick effect on the initial lesion, as well as on mucous patches and condylomata. Its action on mucous membrane lesions generally, is quick. Its effect on the cutaneous eruptions is not more prompt or more complete than that of mercury.

The abortive action of salvarsan in the primary period gives it a very valuable field of usefulness. About forty per cent. of initial lesions in which the *spirocheta pallida* can be demonstrated, show a negative Wassermann for one or two weeks after the appearance of the lesion. In these cases

there is a reasonable prospect that syphilis can be aborted—a fact which justifies a vigorous attempt with salvarsan. This makes the early diagnosis of the initial lesion a matter of great importance.

After a very exhaustive review of the literature, Dr. Pusey summarized as follows: 1. Salvarsan has real dangers; they are remote, but, when they occur, serious. 2. As far as can be deduced from our present knowledge, there is no reason for believing that salvarsan lessens the occurrence of parasymphilitic nervous affections, and there is some ground for fear that it may predispose to them, except in cases in which it cures the disease. 3. It is a powerful symptomatic remedy. 4. In cases in which vigorous treatment is begun before the generalization of the disease, there is strong ground to believe that syphilis can be aborted. This, possibly, applies to a few early secondary cases. 5. In all other secondary cases its use likely does more harm than good.

Dr. William E. Gamble said that during the last fifty years there have been gradually accumulated by successive generations of ophthalmic surgeons definite clinical pictures of ocular syphilis: plastic iritis with yellowish nodules near the pupillary border; fine, sand-like hyalitis in young people with secondary syphilis; the diffuse retinitis and choroiditis seen in the later stages of secondary syphilis; and, in inherited syphilis, the chorio-retinitis in the periphery of the fundus. It has been by these and other clinical pictures that obscure cases of syphilis have been diagnosed.

Ophthalmologists are frequently called upon to examine the fundus oculi of patients, before using salvarsan, and to make a report of their findings to the physician in charge. If these physicians would ask us to make a study of the fundus after the use of salvarsan, facts would be accumulated that would help us to solve a very important question. In the treatment of syphilis of the eye, salvarsan has not displaced mercury. Where mercury and iodide of potassium fail, it fails. He referred especially to interstitial keratitis. The more or less real danger of arsenical poisoning with its damages to nerve tissue, and the added danger of intravenous injections, make many of us feel that the old methods of treatment of syphilis are in the main more safe and probably more reliable, except in the first few days after infection.

WESLEY HAMILTON PECK, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF MARCH 15TH, 1913.

DR. D. A. STRICKLER PRESIDING.

Herpetic Ulcer of Cornea.

Dr. W. C. Baue presented a case of corneal ulcer, which had begun as a small bleb. The ulcer had been curetted, and had cleared up, but there had been a relapse. The ulcer was now a little broader than it had been a week earlier. The patient had been on dionin locally, and calomel had been dusted on the ulcer. Dr. Baue regarded the case as of the nature of herpetic keratitis, although there were no lesions on the lids. There had been no discharge except the increased flow of tears. The patient had had a good deal of pain.

DISCUSSION. Dr. Black thought that the ulcer was not herpetic in the usual sense of the word, but should be regarded as a constitutional ulcer.

Dr. Jackson suggested touching the edges of the ulcer with pure nitric acid.

Dr. Coover would fill up the eye with iodoform ointment.

Dr. Sedwick favored using holocain at short intervals. It relieved the pain and had a slight antiseptic action.

Unusual Case of Entropion from Trachoma.

Dr. D. H. Coover presented a boy of ten years, both of whose lower lids were turned in towards the eyeball in such a way that the lashes lay perfectly flat on the cornea. The boy's appearance was very striking, the lashes appearing as a series of vertical parallel lines on the lower part of the cornea, which showed a moderate degree of vascular pannus. The father stated that the boy had had very bad eyes before he was two years old, and that the lids had been turned in ever since. What would be the best procedure to turn the eyelids out?

DISCUSSION. Dr. Black would divide the fibers of the orbicularis muscle in the lower lid.

Dr. Matson stated that he had sandpapered the upper lids for the trachoma three years ago, and at that time the general anesthetic had not relaxed the entropion.

Dr. Jackson would use the galvano-cautery point, drawing the skin well down, making three or four punctures, and going deeply into the subcutaneous tissues, so as to produce firm adhesion.

Optic Atrophy with Tabes.

Dr. C. E. Walker presented a patient who had rapidly and completely lost the sight of both eyes. Both optic discs were paper white. The man was believed to have had syphilis. His knee jerks were absent, and one leg was partly paralyzed. Could anything be done for him?

DISCUSSION. The opinion was generally expressed that the eyes would not be benefited by any form of treatment.

Dr. Sedwick had had a case in which the patient thought the vision improved after salvarsan, but Dr. Sedwick had not shared the patient's opinion.

Traumatic Rupture of Choroid.

Dr. H. Aufenwasser presented a young man whose left eye had been struck by a toy arrow in boyhood. There was a horizontal rupture of the choroid extending from either side of the disc as far as one could see towards the periphery of the fundus.

DISCUSSION. Dr. Jackson stated that it was the first case he had seen where the rupture was not concentric with the disc.

Dr. Black recalled a case in which the rupture was concentric with the macula and not with the disc.

Dr. Crisp had within the last day or two seen a case of horizontal rupture. The patient had been invited to attend the meeting but had not appeared. In this case also the line of rupture was absolutely horizontal, running across the extreme lower edge of the disc, out four or five disc diameters to both the nasal and temporal sides. There was a second line of choroidal disturbance above the first, less extensive and less regular, and showing no complete atrophy, but having several pigment deposits. The eye had been struck by a frozen clod ten years earlier.

Anterior Scleral Trephining for Glaucoma.

Dr. Edward Jackson presented a woman of 44 years, who had developed glaucoma in both eyes. Her latest attack had lasted a month and she had been in very severe pain which had been only partly relieved by eserine. At her first visit to the office the tension of the right eye (Grädle-Schiötz) was 74 mm. of Hg. The pupils were large, fixed and somewhat irregular. The patient had about 3.5 D. of

hyperopia, but had worn no correction. Ten days previously Dr. Jackson had done anterior scleral trephining by Elliot's method on the right eye. The tension of the eye was now practically normal and the patient was almost free from pain. An iridectomy had been combined with the trephining, but the part of the pupil not affected by the iridectomy was now smaller than it had been before under the influence of eserine. The flap had not been sutured, but well covered the trephine hole. The conjunctival incision had been made parallel with the top of the cornea. A flap 5 mm. broad from the corneal limbus was probably ample. The fragment of sclera had remained attached at one edge, and had dropped into the anterior chamber, but it was easily caught with the iris forceps and excised.

DISCUSSION. Dr. Black had recently done a trephining without suturing the flap, which had nevertheless kept in excellent position.

Dr. Coover objected to a sliding flap that it adhered to the cornea for a long time after the operation.

Bilateral Posterior Polar Cataract.

Dr. H. R. Stilwell presented a woman of 36 years, each of whose eyes showed an opacity at the posterior pole of the lens. There was also a large opacity to the outer side of the left lens. The left eye was slightly protruded and the right pupil had been permanently dilated for four years. The vision of each eye was 20/30 —. There was a small vitreous opacity in the right eye.

DISCUSSION. Dr. Black thought that the opacities which were back of the lens, and also the vitreous opacity, were in the nature of hyaloid remains.

Steel in Orbit After Penetrating Eye.

Dr. E. E. McKeown presented a young man, who four weeks previously had received a penetrating injury of the right eye. A piece of steel had entered the eye to the outer side of the cornea. Diagnostic use of the magnet had produced pain but had not brought the foreign body to the surface. X-ray examination subsequently showed the fragment to be lodged 32 mm. from the anterior surface of the cornea and 9 mm. to the nasal side of the median line of the eye. Dr. Walker had suggested the use of potassium iodide in increasing doses, mercury inunctions, and Turkish baths three times a week. The patient now had 20/30 vision in this eye, as

compared with light perception at the first consultation. There were vitreous opacities, but the presumable wound of exit could be made out several disc diameters to the nasal side of the optic disc.

DISCUSSION. Dr. Black described a case of injury by dynamite caps, one eye having been completely lost, and a cataractous lens extracted from the other. This eye got very good vision, and with the ophthalmoscope the point of exit of the foreign body could be clearly made out in the macula. After fifteen years the patient suddenly developed a large retinal detachment.

Dr. Jackson would like to watch the case a while longer before finally deciding that the foreign body was not imbedded in the sclera. There was a peculiar glistening appearance at the presumable point of exit, suggesting the presence of the foreign body at that point. But even if he felt it was in the sclera he would leave it alone as long as the eye remained quiet.

Traumatic Cataract.

Dr. W. F. Matson presented a woman of 22 years, who had come in on the 4th of March on account of opacity in the right lens. She gave an account of having noticed a spot in the right eye on February 18th, and of having found the vision of that eye to be much reduced four days later. The patient's mother reported that when a little child she had sore eyes. Seven years ago she had a bad fall, striking against the corner of a desk with the upper margin of the right orbit, and cutting down to the bone. Sensation had been lost in the region of the injury for about a year. About the middle of January last she struck her head in going through a doorway. Vision was fingers at less than meter, and there was no fundus reflex. Examination of the urine was negative. Would it be well to needle the lens? There had seemed to be slight rise of tension sometime back and again a few days ago, but tension was normal tonight.

DISCUSSION. Dr. Black thought the cataract traumatic and favored needling it. The present age of the patient was favorable for that operation, and the operation was desirable for cosmetic reasons, to improve the visual field on that side, and to save a useful eye for the future. Cataracts in young people were liable to undergo changes such as made the possibility of a good result poorer in later years.

Dr. Jackson thought the look of the eye suggested that the change in the lens might have followed the recent injury. The lens seemed to be in the stage of swelling, and he would wait a month or so before needling it. If the lens became very opaque, he would try to insert a needle into the nucleus, when needling was done. Otherwise one was liable to get a loose nucleus persisting after absorption of the cortex.

Neuro-retinitis.

Dr. D. A. Strickler presented a case of neuro-retinitis involving both eyes. The vitreous was quite cloudy. Vision was now 20/200. The patient gave a specific history, dating from June, 1912. The eyes had become rapidly affected in November. The man had been put on mixed treatment and had had three doses of salvarsan. The patient's condition had improved somewhat for a time after the first dose of salvarsan, but was now about stationary. What further treatment was suggested?

DISCUSSION. Dr. Jackson regarded the case as probably one of malignant syphilis, and would continue the mixed treatment and give more salvarsan.

Dr. Crisp suggested that the mercurial treatment should be by injection.

WILLIAM H. CRISP, Secretary.

MINNESOTA ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

MEETING OF APRIL 11TH, 1913.

DR. FRANK TODD PRESIDING.

Kuhnt's Operation for Trachoma.

Dr. Lewis presented a man aged 50, on whom he had performed Kuhnt's operation for trachoma five months previous. The cornea showed healed ulcerations and the remains of an old pannus.

DISCUSSION. Dr. Spratt: The main difficulty with the operation is that the operator does not get all of the diseased tissue from the outer and inner angle. There is plenty of conjunctiva left and no trouble is experienced in covering the denuded area.

Dr. Burch thought there was danger of the stitches sloughing, as it was a septic area, and be the cause of a marked entropion. He noted the point that although Kuhnt

had been doing this operation for a number of years it had never been very much copied.

Dr. Spratt had never seen entropion following this operation and thought that if the stitches did pull out one is no worse off than before as all trachoma cases heal by cicatrization.

Dr. Lewis: There is no necessity for much tension on the stitches and there is little tendency toward sloughing.

Bullet Wound of the Orbit.

Dr. Burch presented a man aged 24 years, who had been shot with a 22 rifle three weeks previous. The bullet had gone in just below and back of the left ear and came out at inner canthus of left eye.

Present Vision $\left\{ \begin{array}{l} R \ 20 \ 15 \\ L \ 20 \ 100 \end{array} \right.$

Vision was lost at the time of the accident for 24 hours in the left eye. It gradually improved till the fourth day, and since then has remained the same. Diplopia is still present except when looking straight ahead. The media was clear and the fundus showed rupture of the choroid in two places in upper outer quadrant, and a choroidal pigment patch in lower inner quadrant somewhat circular in outline. Dr. Spratt was reminded of a case he had seen in Dr. Allport's clinic where the bullet went through the man's head and cut both optic nerves. There were punctate hemorrhages in both retinæ.

Dr. McDavitt exhibited a tumor he had removed from the orbit of a child five years old. It was one month after he had removed the eyeball on account of a glioma which had filled the eyeball and extended through the lens into the anterior chamber.

DISCUSSION. Dr. Spratt thought there was hope of recovery in those cases where the tumor had not perforated the eyeball, but when the orbital tissue has been penetrated or the optic nerve involved it is absolutely useless to operate.

Dr. McDavitt referred to a case he had seen 10 years before, where he was able to have the eye removed before the growth had broken through the sclera with no return of the growth.

Dr. Lewis exhibited a trans-illuminator similar to the one made by Dr. Lowell of Boston. It was an ordinary pocket flash light with a short collar fitted over the light. It had the advantage of being portable as well as very efficient.

E. R. BRAY, M. D., Clinical Secretary.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.
SECTION ON OPHTHALMOLOGY.

MEETING JANUARY 16, 1913.

DR. WILLIAM M. SWEET, CHAIRMAN, PRESIDING.

Cerebrospinal Syphilis with Ocular Palsies.

Dr. Posey showed a case of cerebrospinal syphilis with complete bilateral ophthalmoplegia interna and almost complete bilateral ophthalmoplegia externa. There had been marked deformity in the position of the eyes and head occasioned by the tilting of the left eye up and in, in consequence of an overaction of the inferior oblique and superior rectus muscles of that side. The deformity had been largely overcome by a complete division of the tendon of the inferior oblique and by a guarded tenotomy of the superior rectus muscles.

Exhibition of a Case of Vernal Conjunctivitis.

Dr. Posey showed also a case of vernal conjunctivitis of an unusual type in which the pale pinkish, waxy excrescences in the conjunctiva had persisted for several years during the cold weather, and on account of their more or less rounded yellowish appearance, simulated trachoma. Dr. Posey considered this type extremely rare, having met with it but three or four times in his entire practice. In several similar cases he had been compelled to shave off the granulations even with the conjunctiva by means of a sharp knife, to prevent mechanical injury to the cornea. He had found continuous massage of the conjunctiva with lanolin or with a salve of yellow oxide of mercury (4 per cent.) the best means of preventing a recurrence. Dr. Posey referred to the preponderance of cases of vernal conjunctivitis in low-lying districts, but said that he had observed several cases which had originated at an altitude of over 10,000 feet.

An Electrical Perimeter.

Dr. George S. Crampton exhibited an electrically illuminated modification of the McHardy perimeter devised by Dr. Nelson M. Black, of Milwaukee, who succeeded in obtaining pigments in Europe which, on spectroscopic analysis, were found to be pure enough for practical purposes. The red and green were quite pure, while the blue showed a faint green border, and the yellow gave a varied spectrum with yellow predominating.

The question of light value still seems to offer considerable difficulty, and some means of standardizing the amount of light used in all electric perimeters is necessary in order that we can compare fields taken by different observers. A small photometer would seem to be indispensable in the adjustment of the illuminant so that it will give a field equal to that of average daylight. The minimum degree of light obtainable with the present model gives a field somewhat larger than that obtained with daylight. The instrument is very convenient in taking fields where the vision is much reduced.

The point of fixation and moving light are controlled by diaphragms. The translucent pigments, in the form of isinglass, are sealed between plates of glass, and are illuminated by tungsten lamps supplied by a dry battery with rheostat. The perimeter is manufactured by the De Zeng Standard Co.

Dr. S. Lewis Ziegler stated that the perimeter just shown was practically a duplicate of Michel's perimeter. Recently he had brought from abroad some of the colors used on this perimeter, and he was under the impression that the colors were made in a similar way to those used on the instrument exhibited by Dr. Crampton, that is, thin pieces of colored isinglass were placed between two pieces of glass. He had seen Michel's instrument used in the Vossius Clinic at Giessen, but he thought there was one objection to the instrument in that the fields so obtained were much larger than those secured by daylight.

Dr. Zentmayer said that there was one advantage that occurred to him in having the colors illuminated by transmitted light, and that was that they would have equal illumination in all meridians and in all parts of the meridian. With reflected light the body of the examiner is more or less interposed between the source of light and the perimetric arc, especially in the lower field. Again, at some points on the arc the light may so strike the object that there is total reflection and the color temporarily passes from view as though there was a scotoma. An objection to it is that it will be necessary to have new standards for the normal fields, and these will not be comparable with fields taken with reflected light. The electric appliance still further complicates the mechanism of an instrument already too prone to get out of order.

Dr. Sweet stated that he had experimented several years ago with an electric light perimeter, but found the results

unsatisfactory because of the impossibility of securing glass of perfectly true color values, and also owing to the difficulty of securing uniform illumination and eliminating the glare of the light. Glass was secured from the makers of the Michel electric light perimeter in Berlin, but it proved only partly successful. Dr. Sweet found the same increased dimensions of the field with the electric light as noted by Dr. Crampton, and believed that, before accurate fields could be secured, some means must be found to regulate and record the intensity of the illumination at each examination.

An Electric Ophthalmoscope with Translucent Color Test.

Dr. George S. Crampton exhibited a modification of the electric Loring ophthalmoscope, in which variously colored disks can be revolved to position in front of the electric lamp and their exposed areas controlled by diaphragms. This instrument was devised by the De Zeng Standard Co.

Two Cases of Developmental Alexia.

Dr. Burton Chance reported two cases of "developmental alexia" (word-blindness): one in a young man, aged eighteen years, and the other in a lad, aged ten years. The man had attained to a remarkable degree of general learning, and yet he was unable to read printed words, but could readily decipher figures, even in complex combinations. In his attempts at words he first spelled out the letters, quite readily arranging them in their syllables. He was unable to read any words, even those of only three letters, without first vocally spelling them, but after spelling out a word when the same word was written and shown to him he became confused and could not pronounce it. His name and home and school addresses were written, evidently automatically; even these when written by another hand and shown to him he could not read.

In the younger case, letters as well as words were badly perceived. In an attempt to write at dictation the smallest words had to be spelled letter by letter vocally. Oral repetitions could be spelled correctly. Each showed no evidences of defects in color perception nor were there any symptoms indicating defects in the visual fields.

Pseudoglioma with Microscopic Report.

Dr. Krauss reported the microscopic findings in the case of a growth in the vitreous presented before the Fellows last spring. The eye was removed on account of its close resemb-

lance to a true glioma of the retina occurring in a child and the sudden rise in tension. The macroscopic appearance of the section suggested a tumor in the region of the ora serrata. Microscopically the cornea, sclera, iris, ciliary body, and chorioid were practically normal. The retina was detached, except at the nerve, and approximated the chorioid and sclera at the ora serrata. The growth consisted of a small cell infiltration, with a tendency to organize, probably the result of subretinal hemorrhage. A large recent subretinal hemorrhage appeared on the opposite side. The remains of the vitreous were normal.

Dr. Krauss called attention to the marked similarity existing in the reported cases of pseudoglioma, enucleated on account of possible glioma, in all of which the chorioid was unaffected. It would seem that these cases were not in anyway due to suppurative chorioiditis as severe inflammatory symptoms were absent. They form a distinct type to which the name of pseudoglioma should be exclusively applied.

Diabetic Iritis and Retinitis.

Dr. Zentmayer presented a patient having several of the ocular complications of diabetes. The patient was a woman, aged sixty years. She had been under treatment for diabetes for four years. Until one year ago she was on a restricted diet, but as her general condition seemed much improved, she returned to a full diet. Sight began to fail about two years ago, at first slowly, but very rapidly within the last two months. V. O. D. = L. P.: O. S. = counting fingers at 1 m. In O. D. there was an apparently mature cataract with sequelæ of iritis. In O. S. there were numerous posterior synechiæ. There was an irregular curved belt of confluent areas of yellowish-white plaques extending from near the temporal margin of the disk outward a short distance along the course of the inferior and superior temporal vessels. There were a few scattered hemorrhages interspersed within this vicinity.

Dr. Zentmayer spoke of the non-conformity in the descriptions of diabetic retinitis given in text-books and in the writings of various authors. The existence of a distinctive type of retinitis due to diabetes was even questioned by some. From his own limited experience he had come to the conclusion that the lesions in the retina often presented a glistening appearance, and were rather more delicate than the exudative or degenerative areas seen in albuminuric retinitis. The present

case showed changes resembling the early stage of circinate retinitis; however, Fuchs has also seen this type in diabetes.

Dr. Holloway stated that it was always rather difficult to state offhand the number of cases of a certain condition one had seen, but he felt safe in saying that he had seen a number of cases of diabetic retinitis at the University Hospital, and in his experience the whitish lesions were usually diffusely scattered about the posterior pole in association with hemorrhages. A year or so ago he had under observation a case of uveitis associated with diabetes, and at the present time has under observation a diabetic patient who some months ago developed paralysis of one of the ocular muscles. He now has a small hemorrhage in one eye, but there are no white exudative lesions; he has moderate evidences of a sclerosis of the retinal vessels.

Dr. G. Oram Ring asked Dr. Zentmayer how long the case had been under observation, and how many urinary analyses were made during that period. Dr. Ring called attention to the fact that the retinal lesion present which had been diagnosed as diabetic in origin, might be accounted for upon the supposition that nephritis was present, but that during the brief period of observation might have been quiescent.

The kidney lesions which bear a direct etiological relation to the retinal disease may involve only portions of and not the entire organ, and the area of involvement can be at times sufficiently quiet not to show the chemical and microscopic signs of active nephritis.

The clinical symptoms of an associated nephritis with diabetes (other than the urinary findings) so frequently overlap that only repeated analyses will elucidate the problem involved.

It would be of interest in such a case to make a study of the chlorine and nitrogen output in relation to intake.

Dr. Krauss stated that he had seen a number of cases of diabetic retinitis which seemed entirely different from albuminuric retinitis. The lesion consisted of aggregations of roundish spots of glistening white, scattered about the fundus, especially about the disk. There was a marked absence of striate formation about the macula.

Dr. Langdon stated that he was rather surprised to hear Dr. Zentmayer say that some authorities deny the occurrence

of a diabetic retinitis. Did they mean that there were no evidences of inflammation due to diabetes or simply that there is no actual type which may be ascribed to the disease? Already there have been several cases mentioned in this discussion, and without searching my memory carefully, I can think of three cases I have seen, which were believed to be a part of a diabetic condition, at least, no physical signs of any other ailment could be found. Are the aforementioned authorities mistaken, or are we at fault in our belief?

Dr. Hansell stated that the question of extraction of cataract in diabetic patients has been freely discussed, and it is generally agreed that the operation may be safely performed when the percentage of sugar is less than 2 per cent., and the patient is in a fair condition. As an illustration of the wisdom of this dictum, he cited a case recently under his care in the Jefferson Hospital. A woman less than sixty years of age had double mature cataract, without apparent complication. She had long been a victim of diabetes. The left lens was removed, and in four weeks the right lens. Both eyes healed normally and vision with glasses was 20/30. She had 0.8 per cent. of sugar.

Dr. Zentmayer, in replying to Dr. Hansell, said that he recalled a case of cataract in a diabetic operated upon by Dr. Norris, in which the eye became blind from relapsing hemorrhages into the anterior chamber and a severe iritis. He also recalled seeing considerable iritis and recurring hemorrhages in one of his own cases. The eye finally became quiet with a fair amount of vision. In one case in which the resident at Wills was operating and he assisting, because of a too small corneal incision, difficulty was encountered in delivering the lens. He introduced a small hook, and on extracting the lens was chagrined to see what appeared to be the entire iris hanging from the hook. On examination it was found to be a complete pigment cast of the posterior surface of the iris. This overgrowth of the uvea in the diabetes has been pointed out by Greeff.

In reply to Dr. Langdon, Dr. Zentmayer said as he understood it, some clinicians denied the existence of a retinitis attributable to diabetes.

In reply to Dr. Ring, Dr. Zentmayer said that repeated examinations of the urine has been made and no albumin found.

Ring Ulcer of the Cornea Associated with Antrum Disease.

Dr. Charles R. Head reported the clinical history of a man who had lost his left eye as the result of a progressive ulceration of the cornea, necessitating enucleation. Three months later the patient returned with a superficial ulceration of the remaining eye. A complete annular ulcer had formed at the limbus, with a tendency to encroach upon the pupillary area. A paracentesis of the right antrum by Dr. Fielding O. Lewis, resulted in the discovery of pus containing streptococci. Immediately following irrigation of the antrum the ocular condition improved and the patient was discharged after two weeks' treatment.

The patient was perfectly well for six weeks, and then had a recurrence of the ocular symptoms in an aggravated form. A second paracentesis of the antrum disclosed pus and daily irrigations of that sinus were followed by a rapid improvement in the condition of the cornea. There were no symptoms of sinus disease at any time, with the exception of a faint shadow by transillumination. The fundus was healthy and the visual field was normal.

Dr. Posey said that despite the claims of Fish, Fromaget, Ziem, and others, he had found involvement of the cornea and the uveal tract in consequence of accessory sinusitis but rarely. He could, however, recall a case of herpetic keratitis of a dendriform type which had apparently been originated by an ethmoiditis complicating grippe. A similar attack occurred in the cornea of the fellow eye some years later when the ethmoid cells became reinvolved. In association with the ocular and nasal inflammation, there was an herpetic eruption on the skin in the supply of the infra-orbital branches of the fifth nerve of the same side as the affected eye. Dr. Posey warned against the erroneous assumption that because an ocular inflammation occurs in conjunction with a sinusitis, it is necessarily dependent upon it, the deduction being only warranted when all other sources of the ocular affection have been dismissed and perceptible improvement has followed the treatment of the intranasal affection. To elucidate this point, he cited a case of herpes zoster ophthalmicus with dendriform haze of the cornea and with congestion of the ethmoid cells upon the affected side, both manifestations being in his opinion expressions of the inflammation of the fifth nerve in different parts of its supply, the neuritis having been induced by

an anemic and depressed condition from which the patient had long been suffering.

Dr. Langdon considered the case very interesting in view of the difficulty in tracing the course of the infection from the antrum to the cornea. That the infection originated in the antrum can hardly be doubted after a study of the clinical course of the disease, but it is difficult to tell why the cornea should be selected as the site of a lesion secondary to an antrum infection. Cases where the uveal tract is first involved are not difficult to explain, or where the orbital tissues are involved, as in the case of a young negro woman, seen at the Presbyterian Hospital last summer. She had a very rapidly increasing orbital cellulitis. On examination the antrum of that side was found to be filled with pus; this was cleaned out and the orbital condition rapidly cleared up. Such cases permit of an easy explanation of the mechanism of transfer. Had the conjunctiva in Dr. Heed's case been markedly involved it would be easy to understand the sequence of events, but the conjunctiva, I understand, was involved after the cornea. I should like to ask Dr. Heed what his theory is as to the route of the infection.

Dr. Hansell said that Dr. Heed did not mention that the skin in the neighborhood of the eye was hard, stiff, and infiltrated, presenting the appearance of erysipelas and was undoubtedly infected. Dr. Lewis believes that an opening exists in the floor of the orbit through which the orbit and the antrum are directly connected. It is difficult to understand why, if this communication is posterior to the anterior sheath of the orbital fascia, orbital cellulitis is not set up, but if anterior we can readily see that the infection may invade the anterior structure of the eye.

The recurrences of the corneal abscesses simultaneously with the collection of pus in the antrum point positively to a direct causal relation. The recovery, prompt and positive, of the ocular complication commencing immediately after the treatment of the antrum, confirms this relationship.

Motais' Operation for Ptosis.

Dr. J. Hiland Dewey exhibited a girl, aged seventeen years, who had had ptosis of the right eye since babyhood, the condition being, probably, congenital. There was full action of the right superior rectus. Motais' operation was performed. The incision was not carried back to the cul-de-sac and then

forward into the palpebral conjunctiva, as directed by Motais: instead, a cut was made in the conjunctiva just over the insertion of the superior rectus, the tongue of this muscle being dissected to a great extent subconjunctivally. A cut was then made in the palpebral conjunctiva at the superior border of the tarsus, and a pocket made in the lid between the tarsus and the skin down to the ciliary margin.

At this point Shoemaker's suggestion of making it an open operation was adopted, and an incision was made in the skin, however, just above the ciliary margin instead of just below the superior margin of the tarsus as he directs, and the sutures were passed through the skin close to the cilia.

If in any great number of cases, results like the present one can be obtained, the operation should be more generally adopted, as it leaves no disfiguring scar and there is nothing to indicate that an operation has been performed.

Dr. Zentmayer said that what strikes one in the excellent result secured by Dr. Dewey is the apparent absolute restoration of conditions to the normal. It would be impossible without previous knowledge for anyone to say which is the operated eye. In the operations in which a skin tongue is used there is usually a lifting of the lid away from the globe, as well as an elevation and a permanent scar.

Dr. Wm. T. Shoemaker, in reply to a question asked by Dr. Zentmayer, said that in his opinion the good results of the Motais operation were due to a firm fixation of the upper tarsal portion of the lid to the eyeball. He did not believe that the transference of the physiological action of the superior rectus muscle to the upper lid as claimed by Motais was possible, and repeated his previously published opinion that paralysis of the superior rectus muscle was no contraindication to the operation. He furthermore called attention to the advantages of the "open method" of operation, which he advocated in his contribution to the subject a few years ago and which Dr. Dewey followed in his case.

A Case of Retinitis Proliferans.

Dr. Zentmayer presented a case of proliferative retinitis in a poorly nourished Italian man, aged twenty-four years. Six years ago he was in Dr. Posey's service at Wills Hospital, at which time he had a severe neuroretinitis with hemorrhages in the left eye. Two years ago he came under Dr. Zentmayer's

care, complaining of failing vision in the right eye. At that time no view of the fundus of the right eye was obtainable because of dense vitreous hemorrhages. The left eye presented changes suggestive of hyperplastic retinitis. Under tonic treatment and the use of potassium iodide the vitreous cleared up in part, and the patient was then lost sight of. He now presents in the right eye vitreous opacities so dense that no light comes from the fundus. In the other eye there is a characteristic greenish-white membranous brush beginning at the disk, the surface of which it almost entirely hides, and extending downward and outward along the vessels. A second band begins at the nasal margin of the disk and extends forward into the vitreous and shows the development of new-formed vessels. Both Wassermann and v. Pirquet tests were negative (made since exhibiting the patient). The patient has been placed upon potassium iodide and thyroid extract.

GEORGE S. CRAMPTON, M. D., Clerk.

TRANSACTIONS OF THE PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

MARCH 13, 1913.

DR. WENDELL REBER IN THE CHAIR.

Retrobulbar Neuritis of Nasal Origin.

Dr. H. Winfield Boehringer reported the case of a woman 45 years of age with a family history studded with tuberculosis. Eight years ago in bed 7 weeks with neurasthenia. Two years ago had two post-ecclamptic convulsions and for several days vision was misty in both eyes. She was up the 6th day. Four weeks ago patient had mild attack of grippe and was in bed for two days. This was followed in about a week by a bad coryza. A few days later she reported with sudden blindness in her right eye. Vision equaled 20/20 in the left eye and 20/200 in the right. Peripheral vision was better than central. Complained of pain over the right side of her head, especially marked in the right eyeball. Pain in the eye was sharp and severe when percussing over the frontal sinus and more so when the eye was palpated at the outer sclero-corneal junction; but palpation of the eye at any other point elicited no pain. Sudden movement of the eye, especially upward, caused great pain. Pupils were small and reacted to light, and accommodation. The media were clear, fundus details were negative except as to slight tortuosity of the vessels,

the veins somewhat dark and full and a slight paleness of the temporal side of both discs. On taking the fields a large central scotoma was found but no concentric contraction of the form or color field.

The nasal mucosa was found engorged with no hypertrophy of the turbinates. Posterior examination and transillumination were negative as to the sinuses. Patient refused an X-ray. Vision varied as follows: First day 20/200, second day 10/200, third day fingers at 1 ft.; fourth day fingers at 4 ft.; fifth day fingers at 6 ft.; sixth day fingers at 12 ft., which I found equaled 20/200. Next day after working hard, vision dropped to fingers at 6 ft. Did not see patient for 3 days and then vision was found to be 20/75. Vision is still intermittent and foggy and she describes letters as being flashed on and off as by electricity and somewhat luminous. Vision was found to be better on black card than on white one.

The diagnosis of retrobulbar neuritis was made from her sudden blindness following a history of grippe, which in turn was followed by a severe coryza and later edema of the upper lid, pain in the right side of the head and on percussion over the frontal sinus and on the eye, and severe pain on movement of the eye together with a central scotoma. Hysteria and angioneuritic edema were excluded. The treatment consisted of spraying the nose with a 4% solution of cocaine and 1/5000 solution of adrenalin four times a day; 10 grains of sodium salicylate were given every 3 hours. Atropine until dryness in the throat and mouth occurred, which in this case was 1/200 grain every hour for 2 days.

Report of a Case of Papillitis of Doubtful Origin.

Dr. Luther C. Peter: Mr. T., an Italian, age 45, always enjoyed good health until January last, when he suddenly developed severe pain in the right eye in three days. Pain disappeared and patient experienced no other symptoms until middle of February, when pain developed in the left eye. There were no other symptoms, pain having disappeared at time of consultation. Vision in right eye, at this time is limited to faint light perception, and in left eye, 20/30 partly. Pupil of O. D. is moderately dilated, responds but feebly to light and accommodation. Consensual contraction is present in the right eye when the left eye is exposed but not vice versa. Some slight proptosis of O. D., about 2 mm.

Ophthalmoscopic examination at this time, showed in the right eye a round pupil, clear media, disc very hazy in outline, grayish white in color, the cribriform membrane is obscured by exudate, veins are over filled and tortuous and are lost here and there in retinal haze and edema. Arteries are much contracted and show considerable perivasculitis, especially on the disc. Marked retinal striation and edema, which extends some distance beyond the disc edge, but no hemorrhages are visible and above the disc are several small white areas, which probably are the remains of old hemorrhages. There is at this time not much elevation of the disc.

In the left eye the appearance is somewhat in contrast, although similar in some respects. There is more edema, the veins are more engorged, arteries have not changed so much in calibre though somewhat narrow in size, the disc is not so pale—evidently earlier stage of the same process described in the right eye.

Ophthalmic diagnosis, papillitis in receding or atrophic stage, in the right eye—and an earlier, more active stage, in the left. Neurologic examination negative. Nasal examination negative. There is, however, an enlargement of the sella turcica. Wassermann test of the blood was also negative, but no test made from the cerebro-spinal fluid.

Treatment consisted of daily hot packs, preceded by pylocarpin hypodermatically, ung. hydrarg. 1 dr. bd., by skin, and on Dr. Reber's suggestion, the nasal passages were packed daily with 25% argyrol solution for 20 minutes. Since the institution of active treatment, vision has improved from 20/70 to 20/20 partly. Improvement may be due, however, to a recession of the edema in the left eye, which may or may not, be influenced by the treatment.

Diagnosis in this case is difficult, as the report of both the rhinologist and roentgenologist in this case are negative so far as sinuses are concerned. Systemic disease of the central nervous can be ruled out because of total absence of corroborative symptoms. Tobacco, alcohol and lead can also be eliminated as etiologic factors. Tumor of the brain, other than syphilitic, has little corroborative evidence.

By exclusion, disease of the pituitary body and syphilis remains to be considered. Against syphilis is the negative Wassermann from the blood test of this patient. However it is not

unusual to find the blood test negative and the cerebro-spinal test positive in late nervous syphilis. In favor of the diagnosis is, first, the initial lesion; second, the tolerance of mercury; third, the improvement under the use of mercury; fourth, the perivasculitis noticeable in the edema; fifth, the sudden development of the papillitis.

The question of a decompression operation was discussed and Dr. Peter felt that there could not much good come of such an operation at this time.

The Muscular Anomalies of the Eye Due to Sinus Disease.

Dr. William Campbell Posey: By reason of the juxtaposition of some of the eye muscles with the walls of the orbit, and the very close association of the nerves which supply them with the sphenoid cavity, as they pass along the outer wall of this sinus, paresis, and even paralysis of one or more of the eye muscles, may occur as a consequence of sinusitis. While complete paralysis demands an inflammatory process of considerable intensity, and is usually occasioned by a cellulitis of the apex of the orbit secondary to either an active sphenoiditis or ethmoiditis, or more rarely to antral disease, paretic conditions of the muscles may complicate comparatively mild cases of sinusitis, and may occur when the rhinological examination reveals only a congestion of the mucous membrane lining the cavity.

Chronic empyematous conditions of the sinuses rarely occasion marked muscular insufficiencies unless signs of active inflammation arise, for the distention of the walls of the sinus under such conditions is gradual and the displacement of the globe which follows is so slow that the muscles have an opportunity to adjust themselves to the changed conditions of the visual axes under which they are forced to operate. In acute cases, the paresis is occasioned either by direct inflammatory infiltration of the long, broad, flat belly of the muscles themselves, as they lie in association with the walls of the sinus, or by an involvement of the nerves supplying them as they enter the orbit. As in many of these cases the function of the muscle is but slightly interfered with, diplopia is but rarely complained of, and can be detected only by careful search in the periphery field by the aid of a colored glass. Under such circumstances, the diagnosis may often be facilitated by requesting the patient to indicate in which direction movement of the

eyes is especially painful, as considerable distress is often excited when the eyes are rotated into the position in which fullest demand is made on the affected muscle.

As a consequence of this paretic condition of the muscles, vision is often blurred, and while, as just stated, many of the palsies are not sufficiently marked to induce diplopia, when the eyes make their ordinary excursions, the imbalance created is sufficient to confuse vision, to cause vertigo, to excite reflex gastric symptoms and to render the near use of the eyes difficult. By reason of their anatomic relationships, paralysis of the levator, of the superior rectus and the superior oblique muscles, serves to indicate a probable involvement of the frontal cells; paralysis of the internal rectus, an involvement of the ethmoidal; and paralysis of the inferior rectus or inferior oblique muscles, an inflammation of the antral cells. As sphenoiditis may, however, implicate any or all of the nerves supplying these muscles, the value of differentiating the precise muscle affected, as a localizing symptom indicating the involvement of any particular sinus, is not great. Diplopia in the periphery of the field does not always indicate that a muscle has been paralyzed, for it may be induced by a slight displacement of the globe, either by exudation or by the distended wall of a sinus.

Ptosis from paralysis must not be mistaken for dropping of the lid from edema. This differentiation is not always easy, for, as in all other signs and symptoms of sinusitis, both the edema and the palsy may be transient and may disappear, only to reappear after several hours or days, or even longer intervals.

I am of the opinion that if many of the cases of palsy of extraocular muscles, attributed to rheumatism were analyzed that an affection of a sinus would be found to be the underlying cause in many instances. Such palsies may appear after "catching cold," and are associated with more or less pain on moving the eye, and possess other characteristics which suggest the presence of an acute sinusitis.

Thrombosis of the Central Retinal Vein Secondary to Nasal Disturbance.

Dr. Wendell Reber reported the case of a colored man who came into the service at the Samaritan Hospital about 4 years ago. Man was about 45 years of age. Had been in perfect health for 25 to 30 years at least. Within two or three

days he developed blindness in the right eye, vision being only 20/200. Had been examined by his medical man (who was a relative of his employer) but he could find nothing wrong.

In going over him we found a typical picture of obstructive disease of the central vein; the conditions corresponding to that which used to be called apoplexy of the retina. He had some pain in moving the eye but no pain on pressure and no ciliary tenderness and no inhibition of the eye in any of the meridians. Had X-ray made and very careful rhinologic examination. Both negative. The general medical man reported his blood pressure to be 150 systolic and 10 or 15 degrees less diastolic. Practically normal pressure for his time of life. The urinalysis normal and the blood normal, in fact the man was in very good condition. The rhinologic report was doubtful but I am no longer disturbed by a negative rhinologic report in the diagnosis of nasal disease. Nasal disease will sweep in and do its damage and disappear by the time the ocular damage becomes apparent. In this man there was a negative Wassermann and von Pirquet. I insisted, however, that the rhinologist follow up the case, and after long rhinologic treatment of 19 to 20 days he regained vision of almost complete retinal picture. There is a slight change in his right optic nerve head but he still holds on to his 20/30 vision. This was accomplished inside of four weeks without any other treatment whatsoever. I feel that here is a case in which we have shown that the trouble was due to latent sinus disease.

I am perfectly willing to put myself on record as believing that a goodly number of cases of thrombosis of the central veins have in fact been due to latent obscure *un-diagnosed* sinus disease. If there is one thing that to my mind is more important than anything else in the present day study of obstructive disease in the retinal vessels it is latent obscure nasal disease; but this latent condition need not be purulent. From this fetish we hope the medical world will soon be delivered. It is apt to occur in the eye on the same side as the sinus disease.

Within 8 weeks of the time the above case was seen another colored man presented himself in our same service with thrombosis of the right central vein. The coagulation time of his blood was abnormally short. He ultimately regained vision of 5/9 under long continued small doses of sodium iodid (3 to 5 grs. tid).

DISCUSSION. Dr. Posey: By reason of the intimate association of the optic nerve with the sphenoid bone, and as Onodi has shown, in many cases with the posterior cells of the ethmoid, this nerve is more or less implicated in the majority of active inflammatory conditions of these cavities. Indeed, were it not for the double layer of periosteum which covers the bone forming the barrier between the nerve and the sinus, and for the protection afforded by its sheath, it would be difficult to comprehend how this nerve could escape implication in any affection of the sinus, for the separating layer of bone is frequently as thin as paper and contains many deficiencies.

The involvement of the optic nerve, as a consequence of ethmoidal or sphenoidal sinusitis, may vary in degree from a simple edema to an active retrobulbar inflammation. While this latter inflammation is rare, even in cases of marked sinusitis, edematous infiltration is common, although as the change wrought in the nerve is but slight, the symptoms which it excites are not striking, they must be searched for with some care. As a rule, the patient complains of some dimness of vision in one eye, at times of vertigo, headache and other head symptoms. When the ophthalmoscope is employed, the unaffected eye is usually found to be normal, while in the fellow eye a slight veiling of the edges of the nerve is seen, with a dilatation of the retinal veins and a choking of the lymphatics around the central vessels. If the sinusitis is unchecked and retention of the contents of the cavity occurs, the nerve becomes more involved and the familiar signs of a retrobulbar inflammation of the nerve appear.

In cases of even slight involvement of the optic nerve, the patient is usually conscious of a dimness in the affected eye, although if the vision be tested in the ordinary manner it will be found to be equally good in each eye; in other words, that the vision for form is normal. If the light on the chart be reduced, however, or if Bjerrum's test card is employed, the difference in vision between the two eyes will be at once manifest, and it will be ascertained that the dimness in the affected eye was occasioned by a diminution in the light sense, as a consequence of the edematous infiltration of the highly organized bundle of fibres which supply the macular region.

The extent of the involvement of the nerve may be further studied by the perimeter, by means of which it will often be

possible to differentiate relative central and paracentral scotoma, and at times a concentric contraction of the field. If the congestion of the nerve progresses to inflammation and the conducting power of its fibres is further interfered with, then more positive defects in the visual field will appear, and it will be possible to outline absolute scotoma, both central and paracentral, and peripheral contractions in the field, in accordance with the location and the degree of involvement of the nerve.

Enlargement of the physiologic blindspot has been much dwelt upon by some authorities, as of diagnostic value in such cases; but the facts as to the limits of the normal blind spot are not yet sufficiently defined to make sure any diagnostic conclusions we should like to draw.

Dr. Reber: I don't think we have had a case here in the last 4 or 5 years that has interested me more than this case of Dr. Peter's.

I don't know whether he was treated for syphilis or not but he presents a negative Wassermann. In certain cases of this type a specimen should be taken from the cerebro-spinal fluid. We have also a negative neurological and rhinologic report in this case. My attitude toward the rhinologic report is that I usually insist that the case be treated on rhinologic grounds, if I think there is any chance of the trouble being due to the sinuses: *and the case generally gets better*. I have come to the belief that only prolonged rhinologic study of these cases is worth while at all. Fuch's present position is that the rhinologist should be obliged to operate if the ocular symptoms indicate it.

I don't know yet just how much importance the X-ray plays in the diagnosis of these cases for there certainly are variations in size in the normal pituitary body. This man recovered more quickly than any case of syphilitic optic neuritis that has come under my notice. The visual fields are against disease of the pituitary body in this case. There is no denying that we may be dealing with a bizarre syphilitic process.

In Dr. Boehringer's patient the diagnosis rested between hysteria and retrobulbar neuritis. What she tells us about her blindness is absolutely correct. She had some manner of sinus disease, I don't think there is any doubt of that, with the edema of the lid, the history of the case, the grippe, the peculiar type of pain, the tenderness over the frontal sinus and the

reduction in vision. If she had had these things without pain it might have been hysteria. I agree with Dr. Posey when he says he wonders we don't oftener see these ocular conditions in connection with nasal disease. I also agree unreservedly with what he has said in regard to the enlargement of the blind spot. I have had cases of optic nerve disease in my office that did not show any enlargement of the blind spot. On the other hand I have secured most valuable information by this method in certain doubtful cases.

The lesson that stands out from these three cases is the necessity of bearing in mind always the possibility of the nasal origin in obscure ocular disease, and the imperative necessity of a skiagraph in all obscure forms of optic nerve disease.

Dr. Peter: As to enlargement of the blind spot, I have been making a number of experiments and have not been able to satisfy myself that there is any enlargement of the blind spot in these cases unless there is a very marked change in the optic nerve.

I just want to call attention for a moment to Dr. Boehringer's case. It is typical of sinus disease. Central scotoma coming and going, due to an increased pressure within the sinuses themselves and not an inflammation extending along the vascular sinuses is suggestive always.

There is a distinct relation between turbinal disease and eye conditions.

DR. D. FORREST HARBRIDGE, Secretary.

PORTLAND OPHTHALMOLOGICAL AND
OTO-LARYNGOLOGICAL SOCIETY.
PROCEEDINGS OF

FEBRUARY 17TH, 1913.

DR. DICKSON IN THE CHAIR.

The Accessory Sinuses.

Dr. Stewart stated that fully 90% of the patients who consult the rhinologist for treatment have disease of one or all of the accessory sinuses; and that 1% of the diseases of the eye may be traced to this source. Direct cause of these infections is some species of microorganism, while the contributing causes are the mode of living and dressing of the individual and anatomic malformations of the nose. Most common cause is, of course, the ordinary cold. As prophylactic measures, avoid-

ance of large crowds and the exercising on the part of the individual of the common laws of personal hygiene. Deviations of the nasal septum predispose to infections by preventing proper drainage and ventilation. Given an individual with a badly distorted septum and a postnasal discharge, you may expect to find the seat of the disease on the occluded side. Deviation sometimes makes treatment difficult. However, he would delay operative interference if possible, for fear of infecting field of operation. Believes that polypi are the result and not the cause of sinus infections. Polypi are the results of long standing purulent discharge. Symptoms following an infection are in a sense unimportant, for reliance is placed on direct inspection of the nose. Advocates the use of the suction apparatus to aid in diagnosis by draining pus from affected cells. Transillumination regarded as very unsatisfactory, disappointing and not infrequently misleading. Ewing's sign—non-inflammatory edema of upper lid above inner canthus, accompanied by pain on deep pressure—is regarded as of distinct value in differentiating between disease of the frontal sinus and orbital affections. Speaks of a musty odor peculiar to disease of antrum. Referred to the voluminous literature on affections of the eyes following purulent disease of the sinuses, but believes that cases are surprisingly few. "The worst sinus cases seem to show the least eye involvement." Has seen an annoying diplopia disappear after removal of middle turbinate and curettment of anterior ethmoid cells; and an hyperopic astigmatism of $\frac{3}{4}$ of a diopter against the rule disappear after surgical treatment of a sinus infection. He spoke of a series of articles in the *British Medical Journal* by H. M. Fish, reporting thirty-six cases of optic neuritis and atrophy following sphenoidal infections. Recalls a case of glaucoma that had been under treatment by the best men in Europe and America. Tension became normal and both subjective and objective symptoms subsided after a radical frontal sinus operation. Treatment of sinus disease is in a large measure intranasal. In twelve years of practice author has seldom had occasion to resort to radical measures. He finds that peaceable means—namely, cocaine, adrenalin, and the suction pump, will work wonders in the vast majority of cases, the latter means of treatment being especially useful in the acute and sub-acute cases. After the use of the suction pump, Politzerization of the sinuses is frequently resorted to. He recommends that

the patient be encouraged to use inhalations of steam or moist air as hot as can be borne. Condemns the nasal douche and advocates cleansing of the nose by snuffing aqueous solutions from the hands. Solution used of little consequence so long as it be alkaline and warm. For chronic cases intranasal surgery is the treatment of choice. Thorough removal of anterior end of middle turbinate, and supplemented by use of curet around the lower end of the frontonasal duct or ethmoid cells, depending upon the seat of the disease. He has had no experience with the different methods of enlarging the frontonasal duct by use of rasps. The danger of entering the brain instead of the sinus is always present. He thinks that if the indications for radical interference exist, it had better be done externally. Irrigation of the frontal sinus for either acute or chronic cases has been disappointing. Hard to insert a canula into the frontonasal duct. Control by the X-ray is expensive and cumbersome. "To the patient anaesthesia is a most important matter. Recently I have been injecting the site of operation with cocaine and adrenalin by means of a long-barreled, long needle syringe, and find it very effective, especially in the presence of scar tissue." In infection of the antrum, when the teeth can be excluded as a causative factor, irrigation should be given a trial. It will cure 90% of the cases. Uses a weak solution of iodine. In the absence of polypi in antrum, believes that the best results are secured by removing nasal wall with Vail Saw. If polypi are present or the lining mucous membrane much thickened, favors Caldwell-Luc operation. Writer believes that ozena is always the result of suppurative sinus disease, usually a pansinusitis. Careful, discriminating work in the treatment of sinus affections will usually be rewarded with success.

DISCUSSION. Dr. Kistner believes that frequently transillumination is not only disappointing in confirming a diagnosis of sinus disease, but in many cases is actually misleading. It seems to be of more value when applied to the maxillary sinus because of the uniformity in the thickness of the walls of this cavity. He feels that lavage of the antrum is practically valueless when fungoid granulation tissue lines this sinus. He is using the curet less and less in the surgery of the accessory sinuses, and agrees with Hajek "that it is better to bite than to curette." It is a very risky procedure to attempt to remove the middle turbinate bone and ethmoidal cells en

masse with the Ballenger knives. He prefers to have in view as much of the operative field as possible. Agrees with the essayist that apparently insignificant disease of the sinuses frequently gives rise to the gravest ocular complication. Described an anomaly of the sphenoid sinus in which the walls of the right sinus formed the inner boundary of both optic canals. Suction has been of great help in subacute inflammation. It is not always easy to make a correct diagnosis of the sinus or sinuses involved.

Dr. Ralph A. Fenton commended the conservatism of the paper. Urotropin, a much lauded drug in these cases, has not proven of much value in his experience, nor indeed has aspirin. The question as to the action of urotropin on mucous membranes is still an open one. He fears that Politzerization might be capable of causing ear complications. Cannot agree with the essayist that snuffing solutions into the nose is the best means for cleansing the mucous membrane.

Dr. Montgomery urged that in every case of sinus disease the drainage along the floor of the nose should be investigated, and, if found defective, should be corrected. Defective drainage, with inadequate ventilation, was the cause of many acute cases becoming chronic. He does not believe in the use of aqueous solutions as cleansers for the nasal mucosa.

Dr. Chamberlain said that Dr. Stewart made the whole subject appear simple whereas in his experience it was quite the reverse. He asked what constituted a good result—a cure or amelioration of symptoms? Has seen the removal of the middle turbinate and ethmoid cells en masse but once. The patient died from meningitis. It may have been the fault of either the operator or operation or both. In any event he was not favorably impressed with the procedure.

Dr. Waugh has used urotropin because he believed that it was being used extensively in these cases and therefore thought it the proper drug to use. He has gathered from some recent articles on pharmacology that formalin is not liberated as was at first supposed to be the case. Transillumination in his hands has been disappointing. Remembers well a case that showed on the X-ray plate a clear sinus which was later found to be filled with pus. Recently called to see a case suffering with severe ocular pain. Upon the establishment of free drainage from the homolateral frontal sinus pain was relieved.

Dr. Roth reported that in his own case of frontal sinus dis-

case autogenous vaccines, urotropin and negative pressure had all proven worthless and he was doing better with no treatment. Felt that where opportunity afforded it, work on the cadaver was of inestimable value.

Dr. Smith spoke of a series of two hundred ophthalmoscopic examinations made prior and subsequent to the injection of salvarsan, and in none of the cases was there the slightest evidence of optic neuritis.

Dr. Bruere remarked that there had been some work done on the disturbance of the color fields in diseases of the sinus, but could offer no report from personal experience.

Dr. Hendershot spoke of a case that had been referred to him for asthenopic symptoms. Careful rhinological examination showed disease of the sphenoidal and ethmoidal sinus. Negative pressure established free drainage and cure with disappearance of the asthenopia.

Dr. McCallum commended the conservatism of the paper and felt that it was better to undertreat than to overtreat. Palliative measures directed to the establishment of drainage and ventilation usually effected a cure.

Dr. Clement also urges conservatism, and remarked that operators of large experience were doing fewer radical operations on the frontal sinus than heretofore.

Dr. Davis treats these cases conservatively at first and believes this to be the proper procedure. He likes the use of a 10% solution of cocaine followed by a 10% solution of antipyrin instead of adrenalin. Believes the attempt to introduce a canula into an acutely inflamed frontal sinus results in more harm than good. Asks Dr. Stewart what solution he uses in washing out the sinuses.

Dr. Wright also believes in the use of cocaine, adrenalin and antipyrin in the treatment of the acute cases, and leans toward conservatism.

Dr. Higgs believes that in the treatment of acutely inflamed sinuses drainage and ventilation are essential and usually accomplish a cure. If the middle turbinate is jammed against the hiatus it should be displaced toward the septum with a chisel. Likes transillumination in chronic cases. Uses argyrol 10% solution after work on sinuses and likes it.

Dr. McCool agreed with the speaker in his remarks on the relation of the eye to disease of the accessory sinuses. Quite frequently demonstrable suppuration causes no ocular compli-

cations; while on the other hand the most painstaking rhinological examination will fail to reveal disease of any of the sinuses in certain disease of the eye of undoubted nasal origin. These cases are promptly cured by draining and ventilating the sinuses. Uses combination of atropine, aconitine and calomel internally. Cited several cases of iritis of nasal origin illustrating value of this combination. He referred to the splendid work of Onodi on the relationship of the optic nerve and accessory sinuses. Spoke of enlargement of the normal blind spot as indicative of accessory sinus disease, and referred briefly to the history of a case of paresis of both superior obliques with frank palsy of the left external rectus and enlargement of the left blind spot. Subsequent operation on the sphenoidal sinus demonstrated the presence of pus and granulation tissue. Diplopia is gradually improving. Has not had an opportunity to examine the size of the enlarged blind spot since operation.

Dr. Dickson said that the origin of many cases of optic atrophy and ocular palsies of obscure origin was frequently attributed to disease of the brain or spinal cord, when in reality the accessory sinuses were responsible. Thinks many acute "colds" are due to the fact that we keep our houses too warm and dress foolishly. Never saw any good results from urotropin. Transillumination only corroborative. Suction apparatus valuable aid in treatment, although one in use in his office usually refused to work properly at the critical time. Thinks nasal douche of hot saline solution valuable. Wonders what the after results of so much nasal surgery will be in years to come.

Dr. Stewart in closing: Answers Dr. Fenton's objection to the method known as Politzerization by saying that the air in Eustachian tubes acts as a cushion and prevents infection. Believes with Dr. Kistner that where there are granulations present in sinuses irrigation does very little good. He has used strong solution of antipyrin when patient was susceptible to adrenalin. Uses normal salt solution as a cleanser and likes argyrol in acute infections.

Dr. Ralph A. Fenton reported an interesting case: Man, aged 32, initial lesion two years previous. Lately severe occipital pain. Diagnosis syphilitic meningitis. Lumbar puncture negative—no fluid. Mercury, iodides and full dose of salvarsan. When seen before treatment started conjugate deviation of eyes less to the left than to the right. Pupils large.

Fundus normal save for slightly dilated veins. One week after injection of salvarsan pain decidedly relieved. Three days later, while taking breakfast, sudden inability to swallow; flooded the larynx; immediate high tracheotomy; recovery for the time. No loss of sensation in the throat; fed by tube. Died ten days later; intense headache, sudden respiratory collapse and cyanosis. Postmortem: Skull was paper thin; ironed out convolutions; lateral ventricle greatly enlarged and containing an enormous amount of fluid (internal hydrocephalus); foramen of Magendie patulous, which sustained the suspicion formed at the time the lumbar puncture was made, that the needle did not enter the spinal canal.

JOSEPH L. MCCOOL.

The first public meeting of the Illinois Association for the Conservation of Vision and the Prevention of Blindness was held Thursday evening, May 1st, 1913, at Fullerton Hall, Art Institute, Michigan avenue and Adams street, Chicago. The following program was presented:

1. Dr. Thos. A. Woodruff, The Aim and Purpose of this Organization.
 2. Dr. F. Park Lewis, Buffalo, N. Y., Illustrated Lecture, The Prevention of Blindness.
 3. Dr. Wm. H. Wilder, The Dangers of Communicable Eye Diseases.
 4. Dr. James Barry (Chief Surgeon, Illinois Steel Co.), Injuries of the Eye in the Industries.
 5. Mr. Frederick A. Delano, President Wabash Railroad, Importance of Vision in Railroading and Manufacturing.
 6. Dr. Emil G. Hirsch, The Movement for Conservation of Vision from the Standpoint of the Humanitarian.
- Judge James S. Cutting presided.

NEW BOOKS.

The Effects of Drugs and Poisons upon the Eye. (Die Wirkungen v Arzneimitteln und Giften auf das Auge.) by Dr. L. Lewin, professor in Berlin and Dr. H. Guillery, ophthalmologist in Cöln. Second revised edition. Two volumes with 61 illustrations in Volume I, and 6 illustrations in Volume II. Published by August Hirschwald, Berlin, 1913. Price for the two volumes M. 38 (\$9.12).

NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Building, State and Madison Streets, Chicago, Ill.

A New Editorial Secretary.

The Senior Editor of the OPTHALMIC RECORD wishes to introduce Thomas Hall Shastid, A. B., M. A., M. D., LL. B., who succeeds Dr. Woodruff as editorial secretary. Dr. Shastid is well known for his contributions to Ophthalmic literature and has already shown that he has that unusual possession—a capacity for literary drudgery—without which all other editorial gifts are in vain. The new Secretary proposes to make a specialty of editing and publishing, as early as possible, the transactions of the increasing number of ophthalmological societies here and abroad, and asks the support of the secretaries of these societies to that end. Society proceedings will be given priority of publication.

As usual, the OPTHALMIC RECORD also desires short, practical, original articles, which it will undertake to illustrate when necessary. Apart from this promise of new energy in the conduct of this magazine no change will be made in its policy or editorial conduct.

CASEY A. WOOD.

Dr. William Noble and family of Chicago are in Europe.

Dr. Edward S. Bacon, an ophthalmologist of Providence, R. I., died in that city April 8th, aged 50.

Medical inspection of schools in Altoona, Pa. showed 750 cases of eye-strain in 7,277 pupils examined.

Dr. Emory Hill has been unanimously elected to membership in the Chicago Ophthalmological Society.

Dr. D. C. Bryant of Omaha was one of the sufferers in the recent Omaha cyclone. His house was demolished.

Dr. John T. Duncan, ophthalmologist on the staff of the Western Hospital, Toronto, Canada, died recently, aged 59.

Dr. Geo. E. de Schweinitz has been appointed to the executive committee of the Alumni Association of the University of Pennsylvania.

Dr. L. C. Peters of Philadelphia is to succeed Dr. Wendell Reber who has resigned as ophthalmologist to Rush Hospital for Consumptives and Allied Diseases.

Mr. P. E. H. Adams of Oxford, England, has been elected to succeed Mr. Robert Doyne as Margaret Olgilvie's reader in Ophthalmology and surgeon to the Oxford Eye Hospital.

Dr. Lewis H. Taylor of Wilkes-Barre, Pa., was one of the speakers at the annual dinner of the Society of the Alumni of the Medical Department of the University of Pennsylvania, which was held April 18th at the Bellevue-Stratford in Philadelphia.

A series of lectures on optics was given recently in Prof. Dimmer's clinic in Vienna. The lectures were delivered by two collaborators of the Zeiss optical institute who exhibited Gallsbrand's instruments and explained the present day ideas regarding optical problems.

Dr. W. A. Fisher of Chicago plans to leave early this summer for a seven months' trip around the world. He will visit Japan and China and will spend some time in India where he will work with Colonel Smith at Amritsar. The homeward trip will be made by way of Europe.

The Pittsburgh Ophthalmological Society has recently been chartered and organized with the following officers: Dr. E. B. Heckel, president; Dr. Adolph Krebs, secretary; Dr. Edward Stieren, treasurer. Meetings will be held every two weeks with the exception of the summer months.

The new \$75,000.00 fireproof addition to St. Elizabeth's Hospital, Lafayette, Ind., is being equipped with four new operating rooms, one of which will be exclusively for the eye, ear, nose and throat, and under the direction of Dr. Geo. F. Keiper. No pus cases will be allowed in this room.

Dr. Major H. Worthington, a well-known ophthalmologist of Chicago, and for a number of years assistant ophthalmic surgeon to the Illinois Charitable Eye and Ear Infirmary, has

moved to California. Dr. Worthington will locate in Los Angeles where he will be associated with Dr. Robert W. Miller.

"FREE EYEGLASSES FOR PUPILS."

Chicago Evening Post, April 25th, 1913:

"The New York General Assembly has passed a bill which will interest educators in the large cities. It provides that the Board of Education of New York City shall furnish spectacles and eyeglasses free of charge to any pupils in the public schools who may be found to need them. The bill directs the Board of Estimate and Apportionment to find each year the money necessary for carrying out its provisions.

"This is an interesting development in urban pedagogy. It is the product, of course, of the peculiar conditions existing in New York, where neglected eye trouble, especially among the children of poor parents, is a serious matter. Eye troubles tend to make children dull and inefficient, and are sometimes the obscure causes of illness which keep the youngsters out of school. The inefficient individual holds the other pupils back, and apparently no sort of scheme for providing separate rooms for the "retarded" pupils can quite overcome this difficulty. The thing has to be attacked to the source, and eye examination—apparently with free glasses thrown in—seems to be the remedy chosen.

"The new law will not be easy to administer. The Board of Education, which is already bowed beneath more complicated problems than now confronts any one of President Wilson's Cabinet officers, will have to contrive "rules and regulations" for the distribution of glasses. They will have to study how to circumvent the boy who always breaks his glasses, as well as the boy who, pinched for ready money, sells his glasses and comes back for another pair, pretending that they were broken. The efforts of the Chicago Board of Education to persuade the second-hand book dealers not to buy the board's free schoolbooks from boys who try to sell them is an illustration of the administrative situation which will confront the New York school authorities.

"However, their comfort may be in the fact that, while the one child in a number may harass them by his juvenile ingenuity in exploiting this new 'graft,' they will have a markedly easier and more profitable time with the other children."

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.) G. W. Mahoney (Poli.)	*Geo. F. Suker (P.-G.) Oliver Iydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Iydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.) Brown Tusey, N.W.U. Every day, 10-12 A.M.	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ils. Med.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. Allen Barr (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) E. K. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Frank Alport (St. Luke's) *Frank Bravley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (E. E. N. T.) F. A. Phillips (E. E. N. T.) Paul Gifford (St. Luke's) Casey Wood (St. Luke's) T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ils. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ils. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ils. Med.)	*J. F. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	W. Allen Barr (C.C.S.)	W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Puscy (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.; Chicago Clinical School, 819 W. Harrison Street.	County; Cook County Hospital, W. Harrison and Honor Streets.	Poli.; Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue.	Rush; Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.; Chicago Eye, Ear, Nose and Throat Clinic, Washington Franklin Streets. Clinics all day.	Ils. Med.; Illinois Medical College, 182 Washington Blvd.	P.-G.; Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's; St. Luke's Hospital, 1416 Indiana Avenue.
	Inf.; Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.; Northwestern University, 2431 Dearborn Street.	

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXII

CHICAGO, JUNE, 1913

No. 6, New Series

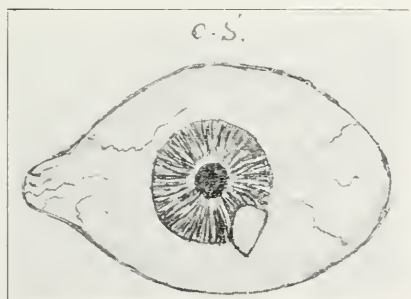
ORIGINAL ARTICLES

CONCERNING DERMIDS AND DERMO-LIPOMAS OF THE CONJUNCTIVA.

WALTER BAER WEIDLER, M. D.,

NEW YORK CITY.

Dermoids and dermo-lipomas of the conjunctiva are both benign and congenital. They are usually flat, reddish or pinkish in color, and grow partly in the conjunctiva, partly in the cornea. They are seated usually in the lower outer quadrant of the eye, rarely in other quadrants.



Case 1.

Dermoids are slightly movable in the conjunctiva, but are firmly attached to the cornea. They are solid, and can as a rule be readily distinguished from the cystic growths frequently seen in the conjunctiva, and which at times reach over onto the cornea. The conjunctival dermoids are at times associated with other congenital defects in or about the eye or in distant portions of the body. This was true in case No. 1 of this paper where there was complete absence of the nail from the little finger of the right hand.

Picque (Theses Paris 1886) was able to collect the rec-

*Presented at the Ophthalmological Section of the New York Academy of Medicine, December 16th, 1912.

ords of 97 cases of dermoids of the conjunctiva, in 27 of which there were other congenital defects, such as coloboma of the lids, iris, chorioid, etc.

Dermoids of the conjunctiva are generally small, varying from the size of the small lentil to that of a large bean, and only objectionable to the patient because of the deformity. Cases have been reported where the growth was large enough to project between the lids.

The microscopical findings have been more or less uniform. The tumor is usually made up of connective tissue, which is rather dense and thick, especially in the part directly under the epithelium, a portion possessing the characteristics of true skin. In the connective tissue of these growths may be found hair follicles, as well as sebaceous and sweat glands, but their presence is not necessary to a diagnosis. Fat cells are very often present; and this makes more intelligible the association of a lipomatous growth (Fuchs' and the author's case, No. 1) with dermoids of the conjunctiva. Gallenga reported a case in which he was able to demonstrate cartilage. These growths may at times take on the form of teratomas of the conjunctiva.

In regard to the etiology of these growths, many theories have been advanced. It was van Duyse's idea that their presence was due to an adhesion of the amnion to the conjunctiva and cornea. This seemed quite possible, but Fuch says "that it does not explain why this point of attachment shows the structure of the external skin with glands, since the amniotic bands are simple connective tissue." However, it would seem likely enough that this attachment could take place, since the eye-ball is exposed from lack of covering, as we know that the eye-lids do cover the eye-ball until after the fourth month.

The general microscopic picture of these growths is such that with slight development and proliferation of the connective tissue islands, these dermoid tumors might be the result.

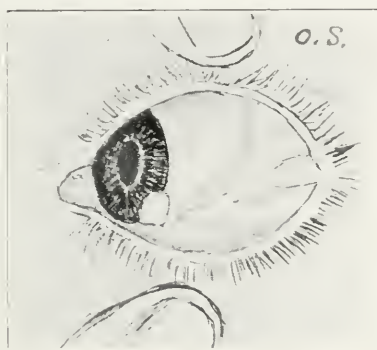
Collins is a supporter of the Ryba theory; Ryba stated that the dermoid tumor of the conjunctiva was due to the failure of complete closure of the eye-lids, and with a cornification of the conjunctiva and cornea occurring at the position of the lid notch. This would lead us to expect dermoid growths whenever there is a coloboma of the lids. This is not true, however, as there have been a number of such cases where there were no dermoids.

Case Record No. 1.

Mrs. J. E. aet., 38, Italian, presented herself at the Manhattan Eye and Ear Hospital for glasses. Examination revealed a growth in the lower outer quadrant of the globe, at axis 125° , and extending onto the cornea.

The tumor was about 5x9 m.m. in its two measurements and the portion involving the conjunctiva was movable under the finger, whereas the portion on the cornea was not movable, being firmly attached to the corneal epithelium and Bowman's membrane.

It was not cystic in character but appeared more solid and no hairs were noted on its surface. Patient said that she thought



Case 2.

that the growth had been there all her life and did not seem to be getting any larger. There were no other growths on the eye-ball or deep in the cul-de-sac.

Case Record No. 2.

Miss A. D. aet., 44, Irish, came to Manhattan Eye and Ear Hospital for glasses. At the corneo-scleral margin O. S., down and out axis 135° , there was a small tumor about 5x7 m.m., in size, extending for about one and a half m.m. onto the cornea.

It was not cystic and was yellowish-white, and seemed to be almost united to the tumor that extended from the outer side of the globe. The growth at the corneo-scleral margin was more sharply defined and the portion over the conjunctiva was slightly movable under the finger while the portion on the cornea was firmly attached and seemed to be limited to the epithelial layer and Bowman's membrane.

Extending over the outer half of the eye-ball was a par-

tially elevated growth, yellowish in color and fairly movable under the finger, showing that it was seated in the conjunctiva. It was a deeper yellow than the growth at the corneo-scleral margin. It extended up under the lids and far into the orbital portion of the conjunctiva, being more elevated as it approached the orbital cavity. It had more the appearance of a lipomatous tissue than the growth at the corneo-scleral margin. Scattered over the outer half of the ball one could see small areas of yellow, fat-like tissue in the conjunctiva, showing the profound tendency to the formation of this adipose cellular tissue.

Patient says that the growths have been present all her life. The little finger of the right hand has never had a nail. The whole outline of a nail is there but no nail. It is covered with a specialized skin. There are no other congenital defects, and no history of such defects in any other members of her family.

Vision O. D. 20/20; O. S. 20/20.

I have never removed any of these growths from the eye but where they are a source of annoyance to the patient they can be removed, and are as a rule easy to remove. In some cases the lipomatous portion of the tumors may extend far back into the orbit. Von Graefe believes notwithstanding that these tumors are essentially conjunctival and not orbital growths.

Lipo-dermoids are always congenital, although they may not be seen at birth because they may be under the lids and are only noticed later on, when they extend farther onto the eyeball. They are far more frequent in women.

A CASE OF PULSATING EXOPHTHALMOS.

By GEO. H. MATHEWSON, M. D.,

MONTREAL, CANADA.

Pulsating exophthalmos may arise spontaneously or result from traumatism, but the traumatic variety is much more common.

The pathological condition which produces the pulsating exophthalmos in the traumatic cases is nearly always a rupture of the internal carotid artery into the cavernous sinus. This causes dilatation of the sinus and stasis in the ophthalmic veins, thus producing the exophthalmos. The pulsation of course results from the heart-beat being communicated to the blood in the sinus.

The traumatism which produces the condition may be

direct as in the case of the injury done to the vessel by a bullet, but is usually indirect, and the result of fracture of the base of the skull as in our case. The main symptoms are proptosis, or protrusion of the eyeball, (2) Objective bruit over the orbital region; (3) Pulsation of the eyeball; (4) Paralysis of some of the extrinsic muscles of the eye.

These symptoms may be developed within 24 hours of the injury, but it is usually several months before they are fully developed. Spontaneous cure is seen in rare cases. Treatment may consist in digital compression of the carotid in the neck, or in ligation of the same. Attempts at clotting the blood by electricity and drugs have not been successful. Tying the carotid brings about cure in the great majority of cases. In a few cases the symptoms have recurred. If vision has not been damaged by injury to the optic nerve through the fracture of the base of the skull, it is generally restored.

The history of our case is as follows: On October 8th, 1910, J. N., a man of 32 years of age, was thrown from the top of a car and sustained a fracture of the base of the skull. His physician noticed at the time that the left eye was much swollen. I first saw him on November 5th, 1910—just four weeks after his accident. His left eye was then very much proptosed, there was complete ptosis of the left upper lid and considerable swelling of the conjunctiva. The movement of the eyeball was very much restricted. The optic nerve and fundus were however quite normal. Vision was reduced to ability to count fingers at 8 feet in the upper half of the field, while it was entirely lost in the lower half. There was no pulsation of the eyeball. The vision undoubtedly was damaged by laceration of the optic nerve resulting from the basal fracture.

On December 20th, 1910, I again saw him and found the veins of the upper eye-lid to be much dilated, while the eyeball was seen to pulsate. There was slight pallor of the optic nerve and slight dilatation of the retinal veins. There was no subjective bruit nor any symptoms beyond an occasional headache, though the man seemed dull mentally. Rest in bed was advised in the hope of spontaneous cure.

On the 27th March, 1911, he was again brought to me and presented the same symptoms as before—except that the vision was almost entirely gone.

On August the 31st, 1911, the proptosis was more marked

Vision was reduced to finger movements only. When I placed my ear to the left temporal region of the patient I could hear a very loud blowing murmur. This murmur though most intense over the temporal region, could be heard over the greater part of the skull—mentally the man seemed more dull.

I advised that the common carotid should be tied by a surgeon, and Dr. Elder performed the operation on September 5th, with excellent results as regards the symptoms, though of course the vision was not improved, it having been damaged by fracture as stated above—not by the pressure.

A month later the patient reported himself and was found to be in good condition, there being but little proptosis, and no pulsation or bruit.

If the visual disturbance had depended on the pressure of the aneurismal mass I should of course have advised operation when I first saw him. The operation is not entirely without danger. de Schweinitz has collected 102 cases where the carotid was tied for this condition with a death-rate of 10.7%. In the hands of an experienced surgeon I am sure the mortality would be very much less.

A CASE OF NON-MAGNETIC STEEL IN THE VITREOUS.

BY FRANK ALLPORT, M. D., AND ALEXANDER ROCHESTER, M. D.,
CHICAGO.

Patient, R. C., aged 26, occupation, railroad section laborer.

On April 2, 1913, while patient was driving a chisel between two rails for the purpose of separating them, to replace old insulating paper packing, a foreign body of some kind was thrown into the left eye. The patient was immediately brought to our office for treatment.

On examination the point of entrance of the foreign body was easily seen in the sclera about 3 mm. from the lateral curvature of the sclero-corneal junction. Cocain was used to dilate the pupil and an ophthalmoscopic search made. The foreign body was easily seen lying in the vitreous but a few millimeters from the wound. It was felt certain by all who examined ophthalmoscopically that this was a sliver of steel and would be easily drawn out by the magnet. Therefore, the eye was completely cocainized and the small hand magnet

applied to the wound. Absolutely no reaction of any kind could be elicited.

It was then decided to have an X-ray photograph taken. This was immediately done, and in spite of the ophthalmoscopic findings the negative showed absolutely no foreign material in the eye. In order to make doubly sure, however, the patient was sent to St. Luke's Hospital and the giant magnet thoroughly tried, but failed to bring about the slightest response. The patient was then treated expectantly but panophthalmitis soon set in and it became necessary to enucleate the eyeball April 10, 1913, eight days after the injury.

Imagine our surprise to find in the eyeball a piece of metal



Skiagraph showing the piece of steel in an envelope.

5 mm. by 3 mm., which looked like a splinter of ordinary steel from the edge of a hammer. This was submitted to the analytical chemists Mariner and Hoskins, who reported, "its approximate composition is from 16% to 19% manganese and the remainder iron. This indicates it to be a chip of manganese steel and would account for its non-magnetic quality." The chemists suggest that the failure of the X-ray picture to show the steel may have been due to an over-exposure of the negative. The radiologist has no satisfactory explanation, but states that the over-exposure theory is absolutely impossible. The picture here reproduced is a skiagraph taken of an envelope containing the piece of steel after it was removed from the enucleated eyeball, and it here shows up beautifully.

On submitting the piece of steel after removal, to the action of the magnet, it was found to be almost completely non-magnetic. If placed directly on the armature of the magnet it would remain there, but if placed only a few millimeters from the armature and the current turned on there was not sufficient force to cause it to attach itself to the magnet.

The reason this case is reported is to impress upon us the importance of not putting absolute confidence in some of those methods of diagnosis which it would seem should always give us positive evidence. Although the ophthalmoscope had shown us a foreign body present, still after the negative X-ray and negative magnet procedures had declared otherwise, we almost convinced ourselves that we had really seen only a blood clot; especially as the vitreous had become clouded, excluding any further use of the ophthalmoscope.

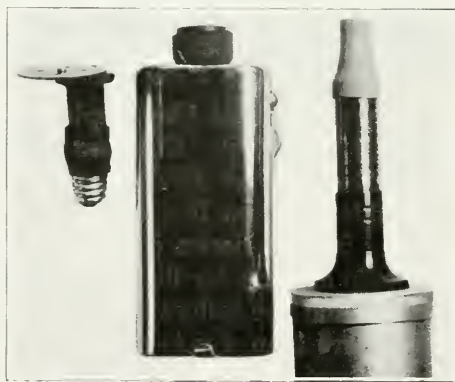
SOME SIMPLE ATTACHMENTS FOR ELECTRIC HAND LAMPS.

F. H. VERHOEFF, M. D.

BOSTON, MASS.

Transilluminator Tip.

This is made, as shown in the illustrations, from the rubber bulb of an eye-dropper. The bulbs of smooth white rubber are the most suitable for the purpose, but almost any kind may be used. This "home made" tip may be attached to an Ever



Ready pocket lamp, or to a de Zeng Electric ophthalmoscope. The latter combination makes the best transilluminator with which I am familiar, the illumination not only being most intense, but confined to a small area. For the maximum intensity the lamp should be pushed almost to the end of the rubber tip.

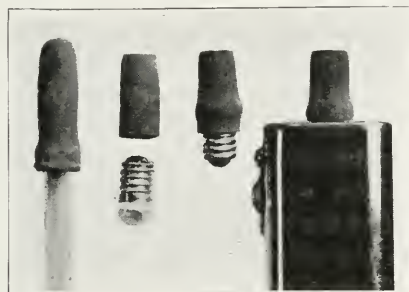
Lens Attachment to Pocket Lamp.

A lens of short focus is attached to the electric globe by a section of a rubber eye-dropper bulb. A suitable lens is the condenser from an electric ophthalmoscope. This arrangement

will be found a marked improvement over the bare lamp, as it furnishes much greater illumination and yet gives a sufficiently large circle of light.

Perforated Rotary Disc for Testing Central Color Vision.

The attachment here shown was made from a thermometer



case, with a piece of thin hard rubber for the perforated disc, and attached to the lamp by a section of an eye-dropper bulb. The screens for the openings were made of photographic film stained, after fixing, in carbol-fuchsin, light green and methylene blue, respectively, and fastened on with balsam. A thin piece of white celluloid is placed in the tube to diffuse the light.

A Case of Gumma of the Iris After the Use of Salvarsan.

BY AARON BRAV, M. D.

PHILADELPHIA, PA.

A. S., age 24, was referred to me by Dr. Savitz on account of severe ocular pain. I saw the patient November 10, 1912, and obtained the following history. He was always in good health until about 5 months ago when he had a chancre which was followed by secondary lesions. He was treated first in Atlantic City until September, when he came to Philadelphia. The latter part of September at the advice of Dr. Savitz he submitted to an injection of Salvarsan. This he did because he had very marked swollen glands on the neck and face interfering with deglutition and preventing him from following his occupation. Within a week following the Salvarsan injection the glands assumed their normal size and he was practically well. He received no other treatment after the injection of Salvarsan which I understand, was given intravenously. Six weeks following the injection he suddenly developed severe pain in the eye accompanied by marked photophobia and lachrymation. The pain was so severe that he could not sleep.

He consulted me 4 days after the onset of the pain when I found the following condition present. O. D. quiet. O. S. red and inflamed marked ciliary injection. Cornea clear pupil about 2 m.m. reaction to light very slow. On the margin of the Iris in the upper and outer quadrant there was a circumscribed reddish brown growth the size of two pins' head. There was also a small adhesion to the lense from the iris at the point of the tumor. Under atropine the pupil dilated excepting at the point where the tumor was situated. At this place there was a distinct synechia. Diagnosis, Gumma of the Iris.

The usual treatment consisting of atropine, leaching, and mercurial inunctions, was instituted and the tumor rapidly disappeared. In fact the eye was perfectly well after two weeks' treatment. Even the adhesion disappeared at the end of the two weeks. I believe that the rapidity with which this case got well is directly to be attributed to the previous use of Salvarsan.

PROPER AND IMPROPER METHODS OF PUBLICITY FROM THE SPECIALIST'S STANDPOINT.

ADDRESS BEFORE THE JOINT MEETING OF THE KING COUNTY
MEDICAL SOCIETY AND THE "AD" CLUB, APRIL 15, 1913.

BY DR. H. V. WURDEMANX OF SEATTLE.

I believe in advertising. I believe in exploitation. I believe in printer's ink properly applied as a stimulant to trade and to development; but there is a distinction to be made between trades and professions. There is no question but what the ultimate object of all business and trades is to get as much money as possible. Medical men are forced to live by the money they earn, but in no instances can it be pointed out with verity, that a professional man has succeeded in a monetary way to any such extent as he would if he used the same amount of work and brain in business.

I think there is no question but that the average doctor would rather be paid a living salary by the State than have to look for his money as we do now, to people whose income has stopped or been reduced because of incapacity to work on account of illness. This standpoint relates to the specialist in medicine as well as to the general medical profession, for the relation of the specialist is in most instances not direct with the patient but as a consultant and an assistant to the general practitioner. In order to get their work specialists do *advertise and*

they advertise in printer's ink, but not direct to the patient or to the sick people. They have to make themselves known to the medical profession in various ways, more particularly by the publishing of their scientific work: for the specialist is or should be a scientist. His published essays in medical journals or advertisements if you will call them that, deal with mooted points and new methods that are on trial and which are not by any means in shape to place before the general public: indeed they are far over the head of the average man. Thus it is that it would be highly improper to put his work before the people in the form of literature or advertising matter, there are some three hundred medical journals which are the appropriate places.

What Form of Advertising Could Specialists Legitimately and Truthfully Place in the Public Press?

There should be nothing for them to say except that "I am a specialist," "I treat Diseases of the Eye and Ear," "I treat diseases of the Skin," "I treat Diseases of Women," or other branches of medicine. "I restrict my practice to this line of work." "My address is such and such and my office hours are so and so."

Thus the specialist has nothing real to advertise except that he is a specialist, his office address and his hours. A card in the papers stating such facts is not objected to by the medical profession. He cannot puff himself as being better than anyone else, that he knows this or that any more than any other or that he uses methods of treatment that are known only by him or in advance of other physicians: for medicine is a personal matter, there are no methods of treatment that are peculiar to any one physician or sect. The opportunity to learn any or all methods are open to all physicians and there are no secrets.

Why Do Not Specialists of Reputable Character So Advertise in the Daily Press?

The reason is this, that their advertisement would be near or perhaps on the next page with lying and deceiving announcements of alleged specialists and they would thus be placed on the same plane and would have more harm done than good as people who otherwise come to them would keep away.

Now We Come to the Character of Advertising Specialists.

In all the large cities there are alleged specialists adver-

tising in the public press, the greater majority of whom are simply hired men, hired at the rate of \$100.00 or a little more a month, by individuals who have no connection with the medical profession except as a corporation to make money out of the sick and ailing. These men have tried to get a practice by their brains but have become failures, being forced into this disreputable method of earning a bare living by their former ill success. I could point out to you examples of extensively advertising specialists who have been or are now occupants of the penitentiary for crimes and misdemeanors that in several instances had no connection with their medical practice.

Thus it is that present at the real specialist in medicine is not willing to and deems the times inopportune to advertise even his name and address to the people in the public prints.

If you will clean up your advertising columns and get rid of fraudulent advertisements, there is nothing in our customs or our ethics that would prevent us from such a method of getting directly before the people if we so desire.

ENUCLEATION UNDER CILIARY GANGLION ANAESTHESIA.

JESSE S. WYLER, M. D., CINCINNATI, O.

For a great many years the need of a method for removal of the eyeball without the use of a general anaesthetic has been felt, and judging from the number of modes advocated, efforts have not been crowned with success. The avoidance of a narcosis *is especially felt* in very aged individuals with sclerotic vessels, and in those patients whose general physical condition is such that great danger would be incurred in putting them into an unconscious state. Examples of both these contraindications I have met in the past year, and should in the future prefer to use a local anaesthetic if possible. In one of the cases, that of a man 80 years of age, with malignant glaucoma, I had a tremendous haematoma of the orbit protruding from between the lids, and in the second, following the operation, my patient nearly died from a myocardial insufficiency brought on by the anaesthetic.

The usual method of obtaining a painless enucleation has been by means of an infiltration of the orbit surrounding the muscles and the optic nerve. This way has met with success in the hands of many operators and, with slight variations in

technique, is frequently described. However, the serious criticism is that it fails to make painless an inflamed and tender bulb and therefore can only be used in selected cases. As this was noted by Elschmig back in 1907, and, realizing that infiltration of cocain or Schleich's solution does not act in the presence of overfilled blood-vessels, he determined to put the nerve blocking procedure into use while attempting enucleation and it is upon this basis that ciliary ganglion anaesthesia received its impulse.

The sensory nerves of the eye have their origin from two main sources. The short ciliary nerves springing from the ciliary ganglion and entering the eyeball around the optic nerve supply the posterior part, while the anterior part, including cornea and iris receive their sensations from the long ciliary nerves which are branches of the naso-ciliary nerve, which in turn comes from first division of the trigeminus close to the apex of the orbit. The long ciliary nerves are given off about 2 mm. in front of the ganglion, which in turn, is located between the origin of the external rectus and the optic nerve just after it enters the optic foramen, so that it is easy to perceive that a single injection of cocain could block both systems simultaneously, provided a needle could be carried into this locality. By coming upon the ganglion from above after chizeling away the roof of the orbit, it was found that a needle $4\frac{1}{2}$ centimetres in length entered at the middle of the lateral border of the orbit, penetrated the external rectus muscle and just reached the ganglion. Upon this fact Elschmig based his technique which I follow with but slight variations, and Lowenstein published in the *Klinische Monatsblatter*, 1908, his preliminary report upon the subject. My first attempt was a dismal failure, but after witnessing several operations of this kind in the Fuch's clinic in Vienna and obtaining the proper needle, I have been most gratified with my results.

The technique is as follows:

The patient is prepared as in other operations and then five drops of a 4% cocain solution are instilled into the conjunctival sac at intervals of two minutes. A Pravaz syringe (holding 1 c.c.) is fitted with a strong needle exactly 5 cm. in length and filled with .9 of a 1% cocain and .1 cc. of adrenalin (1-1000). The speculum is inserted to put the canthus on a tension and the needle is entered exactly in the angle of the external canthus close to the bony edge of the orbit. If the

needle is sharp it penetrates easily about $1\frac{1}{2}$ cm. and then strikes the lateral wall when the direction is turned nasally following the wall closely until the penetration has been the entire 5 cm. of the needle. Now by a gentle swaying of the syringe barrel one can easily perceive that the point is free in the orbit and not caught in the periosteum. The mixture is then slowly injected, which results in a slight protrusion of the bulb. I now remove my speculum and wait about three minutes when I exert considerable pressure over the ciliary body to test the effect of my anaesthetic. If the injection has reached its goal, the patient will feel no pain. The operation can now be followed in the routine manner, either using the Arlt method of severing the muscles, or resorting to the tenotomy hook and scissors. Great care is not necessary and even inexperienced operators have no trouble, as is evidenced by allowing two of my internes to perform enucleations after I had administered the injection and the patients did not suffer from the pulling upon the tendons which has heretofore been the chief complaint. As illustrated I shall briefly give histories of three of the five cases I have operated, as the other two were attempted before I had witnessed the method and the technique differed somewhat from that which I now present.

Case I. Young adult male, admitted to the service at the Cincinnati Hospital, who had been struck in the left eye with a bolt. Great oedema of the lids with several lacerated wounds and bloody chemosis of the conjunctiva. The cornea and sclera were ruptured with prolapse of iris and some of the uveal body. Cold compresses were applied and when some of the swelling had subsided, enucleation under ganglion anaesthesia was performed. The patient was of excitable disposition and the region seemed to be excessively painful. The method before-mentioned was followed, although I used a rather dull, thick exploring needle a trifle too long for the injection. Patient refractory during conjunctival incision and complained throughout the entire procedure. Upon completion of operation said that he had not suffered a great deal and had been very nervous.

The anaesthesia was in this case not strikingly brilliant, but the bruised condition of the tissues and the poor needle must be taken into consideration.

Case II. Adult male, 50 years old, admitted at City Hos-

pital for cataract extraction from the left eye. The right eye atrophic following an injury of 15 years standing. Upon palpation marked ossification of the choroid manifest and enucleation advised before operation upon other eye. Procedure followed with new needle and patient talked through the entire operation and said that he felt no discomfort. Two weeks later cataract extraction from other eye with splendid result.

In this case the anaesthetic was ideal and the patient most pleased at not being compelled to take a general narcosis.

Case III. Patient an adult male of 40 years, phlegmatic in disposition, who had been blind in right eye 18 years following steel injury. Tension good, pupils dilated, traumatic cataract present. Complains of irritation in good eye while working at his trade as blacksmith. X-Ray negative, but as eye is amaurotic, enucleation advised. Technique followed, and ball removed. Lid fissure rather small and patient complained mildly of dragging upon muscles. However talked during operation and walked from operating room to his bed in ward, preferring that to the stretcher awaiting him. A small fragment of steel was found in the choroid near the ora serrata upon opening the bulb.

Here the anaesthesia was good, but not equal to case II., but patient said it was far better than "being put to sleep."

A summary of this brief report with its limited number of trials brings out the following facts.

1. Local anaesthesia is certainly less dangerous and more agreeable than general for enucleation.
2. Upon cutting the optic nerve none of my five patients saw the flash of light to which one sees so many references.
3. The method is a very easy procedure.
4. It is applicable in inflammatory conditions where infiltration has proved unsuccessful.
5. Healing is rapid and there is less fear of a hemorrhage.
6. Whether or not this method can be used in other painful ophthalmic operations remains to be seen. Experimental work alone will show whether the nerves and ganglion recover from the injection. However, as other nerve blocking anaesthesias do not leave permanent effects it is only plausible to suppose, that in this method function would be resumed and that the future will see the ciliary ganglion anaesthesia popular for other painful operations on the globe.

REPORTS OF SOCIETIES.

BERLIN OPHTHALMOLOGICAL SOCIETY.

MEETING HELD JAN. 23, 1913.

Demonstrations before the Order of the Day.

Herr Lehmann: Two patients with hole at the macula, both of whom later suffered from ablatio retinae.

Herr West: A series of patients, who had suffered from epiphora and whom he had treated with success by opening the lachrymal canals.

Herr Ginsberg: Patient with an unusual extent of medullated nerve fibres.

Herr Adam: A woman 60 years of age with cholesterol crystals in the lens.

The crystals, 10 in number, are small, shining, yellowish rods, about $\frac{1}{2}$ mm. in length, and the lens is only slightly cataractous. In overripe lenses one finds indeed cholesterol crystals very frequently—for the cholesterol content of the lens may run as high as 2%—but, in not completely clouded lenses, extremely seldom. In fact, the only reports of such cases have been made by Langenhan, Clausen and a few Englishmen. In this patient's other lens were visible a few small vesicles.

Herr Napp exhibited 2 soldiers of the Railway Brigade, who showed a peculiar disturbance of the color sense. Both patients were alike in this, that they seemed to be completely normal under the anomaloscope of Nagel (model I and II), and the Nagel-Köllner lamp for color comparison and Nagel's three-light-apparatus, while both appeared very anomalous when examined by Stilling's charts, by Nagel's charts, and by the charts of Cohn. Both made mistakes with a number of the Stilling charts. With a few charts they could not recognize at all the presence of numbers. In the opinion of the speaker, the remarkable finding in these 2 cases is of a kind to confirm the experience of Nagel, and to extend it to this, that there are persons who can read neither the charts of Stilling nor those of Nagel, yet who are neither dichromatics nor anomalous trichromatics. Therefore the speaker cannot agree with the assertion of several authors, that the Stilling charts are more appropriate for testing the color sense than the Nagel chart. He recommends that the test for the power of

the color sense be made first with the Nagel chart, and that this examination be afterwards supported by a test with the Stilling charts and the anomaloscope of Nagel.

Herr Köllner has made a number of thorough investigations—such as heretofore have not appeared in the literature—concerning the vision for distance in one-sided myopia, and indeed concerning the near vision also. Tests were made also at a distance of 15 and 12½ cm. of the object from the eye, as many one-sided myopes are accustomed to viewing objects at that distance. Many hundred personal observations (one-sided myopia of 4.00 D) showed that the sharpness of the distance vision increases so rapidly that, at a distance of about 15 cm. the acuity stands very close to normal. A certain amount of time is necessary, of course. Furthermore, practice plays a great rôle.

In the reading test, the one-sided myope does not invariably employ his myopic eye as the dominant for near and the emmetropic eye as the dominant for distance; and especially in the case of myopes of 3 to 5 D does this matter depend on the distance of the object. If the observed object lies far away, then the emmetropic eye dominates, but, if it lies near, the myopic; between these distances is found a short space in which the two eyes struggle for the fixation, and which for this reason is carefully avoided by anisometropes.

Tumors of the Caruncula Lacrimalis.

Herr Wätzold: Just as, developmentally, the caruncle proceeds from a fold of the skin, and just as its histologic structure corresponds very closely to that of the skin, so are the diseases of the caruncle similar to those of the skin. Thus, the tumors of the caruncle are, in kind and character, similar to those of the skin. We find, together with the congenital naevus-dermoid, lipo-dermoid, acquired tumors, as, for chief examples, the malignant carcinoma and sarcoma and the benignant papilloma, fibroma, fibroadenoma, angioma, etc. Among sixty thousand clinical pictures, tumors of the caruncle were observed by W. six times, and in all cases in young persons (between 5 and 20 years). Of the 6 tumors 3 were acquired (1 papilloma, 1 fibroma, 1 fibroadenoma) and 3 congenital (2 naevi and 1 dermoid). The dermoid was as large as a bean, and possessed an especial clinical interest while, for 5 weeks, it was being treated by electrolysis, exhibiting dur-

ing this time in microscopic preparations the various pathologico-anatomical processes (extensive new formation of tissue by granulations, with simultaneous destruction of the dermoid wall and a most extraordinary formation of "foreign body" giant-cells).

L. ADAM, Berlin.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

ANNUAL MEETINGS.

The first meetings of this Society under the revised Constitution were held on Thursday and Friday, April 24th and 25th, at the home of the Royal Society of Medicine and at the Royal London Ophthalmic Hospital, City Road. Mr. J. B. Lawford, President, occupying the chair.

Mr. Frank Juler read a communication entitled *Acute Purulent Keratitis in Exophthalmic Goitre, Treated by Repeated Tarsorrhaphy*. The case was discussed by the President, Mr. Juler senr., Mr. Coulter, Mr. Leslie Paton, Mr. Priestley Smith, Mr. Treacher Collins, Mr. Jessop, Mr. Bishop Harman, Mr. Inglis Pollock, Mr. Johnson Taylor; and Mr. Frank Juler replied.

Mr. Ormond read a paper on two cases of permanent hemianopia following migraine, the patients being young and apparently healthy. He referred to three similar cases recorded by Dr. Thomas, of Boston. Mr. Ormond's first case was that of a woman æt. 33, who had suffered from sick headaches all her life, and for ten years had been subject to very severe migraine. In September last she had a very severe attack, lasting 3 to 4 days, with very marked photophobia, but when she recovered she was unable to see anything to the right of her. There were no other nerve symptoms, and she was otherwise healthy. The fundi were normal, and with some hypermetropic astigmatism corrected she had vision 6/6. There was no defect of the pupil, nor of the extra-ocular muscles. The condition remained unaltered in February last, but she had not had such severe attacks since her loss of sight. The second case was that of a woman æt. 32, who had had bilious headaches since 18 years of age. After three such attacks at intervals of a week, she woke up on August 4th, 1912, with headache still present, and after running to catch a train she found her sight became misty, and when this

cleared, she was unable to see anything to the left of her; but, with her refraction corrected, she had quite good central vision. Nothing abnormal could be found in her general condition, but in March last the hemianopia remained, though during the interval she had given birth to a child. Spasm of the retinal arteries was considered to be a possible explanation. Observations had been made in patients temporarily blinded by attacks of migraine, in which a spasmodic condition of the retinal arteries had been seen with the ophthalmoscope. The probable cause of the blindness in these two cases was a spasm of that branch of the middle cerebral artery supplying the visual centre, resulting in a permanent interference with the visual function of that side, and so leading to blindness on the opposite side.

Dr. Gordon Holmes and Mr. Werner discussed the cases.

Dr. James Taylor and Dr. Gordon Holmes read papers on (a) conditions present in several members of a family with hereditary optic atrophy; (b) unusual conditions associated with optic atrophy, of the family type. The first paper gave an account of two families showing a similar defect in vision. In the first family, *D*, the members of only one generation are affected. There are four brothers living, two sisters; and of the four brothers, three are affected in a similar way, the fields showing the existence of a central scotoma for colours. The discs are pale. In the other members of the family there is nothing to suggest a similar defect. In the eldest of the three affected, the only other symptoms complained of are some weakness in the legs, and occasional difficulty in controlling the bladder. The reflexes are all normal. In the youngest brother, the visual symptoms are the only ones complained of. In the middle brother, besides the visual symptoms there is loss of knee jerk, and a sluggish reaction of the pupil to light, pains in the legs, and analgesia of the lower limbs—signs and symptoms of tabes dorsalis. In this patient also, there is a definite history of syphilis. In the second family, *C*, the affection of sight is similar, but it is spread over more than one generation. With pale optics discs in the members affected there is a central scotoma for white and for colours. In one member, optic neuritis was observed 8 years ago. In one family, four members are similarly affected, while a fifth has congenital cataract. In a collateral branch, three cousins have suffered, and a sister of these cousins had a large

family, one of whom suffers from the trouble. Another died of an orbital tumour. Two other cousins, the sons of another sister suffered from defective sight, apparently the result of defective development. The points emphasized in the paper are (1) the co-existence of family optic atrophy with tabes, yet the absence of any apparent effect of the tabes on the optic nerve in the cases affected. (2) The transmission of the optic atrophy in the female line, as shown by the family tree. (3) The occurrence of migraine in several of the patients affected, and its persistence even after practical blindness has been reached. (4) The occurrence of other eye defects in members of the family—congenital cataract in one, an orbital tumour in another and defective eyes in two others.

At the Thursday afternoon session, Mr. Angus Macnab read a paper on an operation for the excision of the conjunctival sac and lid margins. The conjunctiva and lids are cleansed with hydrarg. perchlor. 1 in 2,000. If there be any discharge from the lacrymal sac, the ordinary operation for its excision should precede the treatment of the conjunctival sac. The lids are scrubbed with ether soap, and the disinfection completed by means of benzine. The rapidity and ease with which the operation is performed will greatly depend on the absence of bleeding, and the manner in which the primary incisions are planned will have a considerable influence on the hæmorrhage. A spatula is introduced into the sac, and the lids successively stretched over it as they are incised. He commences with the lower lid, entering the knife about 3 mm. from the lid-margin and opposite the junction of the inner $\frac{1}{4}$ with the outer $\frac{3}{4}$ of its extent, and cutting freely down on the tarsal plate the incision is carried parallel to the lid margin, to a point just beyond the external canthus; placing the spatula under the upper lid, a similar incision is made which will meet the former at the external tarsal ligament. These incisions will pass down into the loose areolar tissue on the surface of the tarsal plates, and into the orbit above and below the external tarsal ligament. A pair of narrow, sharp-pointed scissors is introduced with one blade above the other below the external ligament and the incisions are joined, some care being observed not to notch the skin at the angle at the same time.

The next step will depend on the condition of the conjunctiva. If it is thickened and glistening white, so as to be

readily visible, the edges of the lids can be seized with a vulsellum forceps and drawn inwards and forwards towards the nose, while the conjunctiva is separated from the orbital tissues below with a blunt-pointed scissors, until the mass only remains attached at the inner $\frac{1}{4}$ of the lids which was not incised at the commencement of the operation.

If the conjunctiva be thin, redundant, folded and hyperæmic as is often the case, it would almost certainly be button-holed by such a procedure, and it is far better to introduce the left fore-finger into the conjunctival sac and thus stretching the membrane, separate it from the orbital tissues with the scissors. In these cases there will always be a rather free venous oozing, but as the dissection can be carried out by touch, this can be neglected until the sac is thrown inwards, when a pad wrung out of hot water will usually leave the wound dry. The original incisions are now completed by means of a sharp-pointed scissors one blade of which is passed under the skin, and the cuts made so that the lines of the first incisions are continued till they meet just beyond the internal canthus. The scissors are then rotated about a right angle, and the whole mass consisting of lid-margins, conjunctiva, and tarsal plates can be removed by a single cut. At this stage the angular vein will be divided and there will be a free hæmorrhage, which can be easily controlled by forceps and ligatures. The wound is then closed by means of four sutures of fishing gut, which pick up the tissues at the bottom of the wound; the dressing is covered with a large pad of wool and a light pressure bandage. Healing almost invariably occurs by first intention, and there is only a thin scar to mark the site of the operation.

The operation can also be performed when the remains of a shrunken globe are present. In such cases the globe is pulled forwards and dissected out with the conjunctiva.

In cases where the whole globe is present and the operation is being performed originally instead of the ordinary excision, the incisions are made in the same way as before recorded, the lower lid is then pulled up, and the dissection of the tarsal plates and the conjunctiva from the orbital tissues continued up to the attachment of the conjunctiva to the globe, when the capsule of Tenon is opened; the upper lid is then treated similarly, and the excision continued by dividing the muscles and the optic nerve as in the usual manner. The

completion of the operation is by separating the mass at its inner half in the manner already indicated.

The majority of my patients have been asylum patients, but I have used the same operation in the case of a malignant growth at the external canthus, which was invading the conjunctiva and the cornea, and in which there was no recurrence one year after the operation. One of my patients had trachoma in both his empty sockets, which contained the remains of shrunken globes. Here the radical cure of the trachoma was achieved by the excision of both conjunctivæ.

I have been enormously impressed by the relief given to patients with discharging sockets by this operation, and have no hesitation in recommending it to those persons who go about with an empty socket covered with a shade, especially as appearance too is greatly improved by the procedure here related.

Mr. N. Bishop Harman read a paper entitled: "An Analysis of Three Hundred Cases of High Myopia in Children with a Scheme for the Grading of Fundus Changes in Myopia."

These cases were collected during educational work in London, and all belonged to the elementary schools, so were socially of the working classes. All had come under observation in connection with the new schools for myopes, many had been watched for several years. Out of the 300, boys were 46%, girls 52%, a difference of 8% which agrees with the difference in the sexes in ordinary vision tests. The bulk of the cases seen were aged 8 to 12 years. Cases in the earlier years were nearly all boys which suggest a greater care by mothers for their men-children. The degree of myopia ranged from 4 to 25D; the bulk, 64%, were from 6 to 12D. The extreme degrees were nearly all in girls. Hereditary influence was marked in 9%. Astigmatism, which the author considered a most likely exciting or adjuvant cause of myopia, was present in 64%, a far higher proportion than in other defects. Previous keratitis was found in 11%. Congenital defects, such as albinism, coloboma uveæ, dislocated lenses, aniridia, existed in 5%. Squint in 4%. Nystagmus, mostly associated with bad vision, in 7%. The lens had been removed by operation in 3% but the improvement of vision was not great.

Dealing with fundus conditions, Mr. Harman criticised adversely the present nomenclature for changes about the disc;

he proposed that the fundus should be spoken of as first, second or third degrees according as the atrophy at the disc was as wide as one half the disc diameter, the whole diameter, or greater than that. To this would be added other details about the macula, etc. He showed a chart giving the correlation of refraction and fundus change according to this plan. it bore out his contention. He maintained that some definite notation is necessary when these cases come under observation for a definite object, such as the regulation of education.

Grave cases with lens changes, vitreous opacities, or detached retina, numbered 8 cases, or less than 3%. Of these, 3, or 1%, went blind, two of them probably by injury to their fragile eyes.

A chart was exhibited showing the changes in the myopia of 80 children who had received special education over several years, the number of stationary cases seemed to show that these arrangements were of value in the control of the condition.

The next communication was by Mr. Treacher Collins and Mr. Hudson, on the pathological examination of an eye with congenital anterior staphyloma. It was illustrated by a number of slides.

Mr. Treacher Collins followed with a paper dealing with fibrous tissue formation in connection with the fibro-vascular sheath and visible vessels on the surface of the iris.

The communication was discussed by Mr. Jessop, Professor Straub (Amsterdam), and Mr. G. Coats. Mr. Collins replied.

The Sensory Pupil Reflex in Tobacco Amblyopia.

Mr. E. Arthur Dorrell said that the dilatation of the pupil which occurred when the skin of any part of the body was stimulated, was, in tobacco amblyopia, either in abeyance, or obtained only by increased stimuli.

100 cases were examined by him. The lowest stimuli which give dilatation in the normal eye are obtained by from 5 to 7 cells of a constant current battery (5 cells of which give approximately 3.5 milleamperes) the negative electrode being applied to the side of the neck.

The cases were divided into three classes as follows:

Class A. Ordinary unselected cases, showing no signs of nervous disease and not suspected of tobacco poisoning.

Class B. Cases suspected of tobacco poisoning and showing no signs of nervous disease.

Class C. Cases showing signs of nervous disease.

In Class A, 58 eyes were examined, with the result that, in 89 per cent, only 5 to 7 cells were required to produce the reflex.

In Class B, 121 eyes were examined in only 20 per cent was dilatation obtained with 5 to 7 cells, and in over 50 per cent of the remaining 80 per cent, no dilatation at all was obtained with the strongest stimulus the patient could stand.

In Class C, 18 eyes were examined. In only 22 per cent was the reflex obtained with 5 to 7 cells, and over 75 per cent of the remainder gave no dilatation.

Owing to the similarity in the results in Classes B and C, this test is not a positive sign of tobacco poisoning alone, but should be included in the symptom complex locomotor ataxia and allied affections of the spinal cord.

Friday morning was occupied with the discussion of the subject, *Vascular and Other Retinal Changes in Association With General Disease*.

Dr. James Taylor opened the discussion by referring to the wide scope of the subject, saying he thought it would be impossible to discuss it fully in a manner which would be instructive. So he proposed to direct particular attention to thrombosis or embolism of retinal vessels, and to raise some points in reference to other conditions embraced in the title of the discussion.

Dr. Taylor asked first as to the prognosis in albuminuric cases and referred to the short duration of certain cases and the length of life in others. He mentioned a case of albuminuric retinitis which he observed during five years before death occurred. He referred also to diabetic cases, mentioning one in which the condition had existed for eight years. The patient was still alive. The "silver wire" arteries described by Marcus Gunn were also adverted to, and a case, seen by Gunn and diagnosed by him, was mentioned, the patient being still alive after nine years. Dr. Taylor then reported four cases with the ophthalmoscopic appearance of embolus in the central artery of the retina. In two of these, heart changes were present; in two no such changes existed and there was no albuminuria. Reference was made to the frequent occurrence of the characteristic ophthalmoscopic appearance of embolus

in the central artery, in which no heart disease could be discovered. Such were probably thrombotic.

Eight cases of venous thrombosis were then described. In 7, albuminuria with cardiac hypertrophy was present; in several, both conditions; one patient is alive and in fair health after two years.

A brief reference was made to retinal hæmorrhage resulting from syphilitic disease—not a very common condition.

Dr. Taylor concluded by expressing the opinion gained from the experience which his colleagues at Moorfields had afforded him, that in most cases of venous thrombosis, cardiac hypertrophy and vascular disease are usually present. Albuminuria also may be present. In his experience, venous thrombosis is not very common in glycosuric cases. The prognosis in such cases is bad, yet, exceptionally, the duration of life after venous thrombosis is much longer, than one would naturally expect; thus, there was a patient seen by Mr. Morton six years ago, who had venous thrombosis, but who is still alive and well, and possessed of good vision.

Mr. L. Werner (Dublin) dealt with the subject of angio-sclerosis, chiefly from the clinical and ophthalmoscopic viewpoints. The ophthalmoscopic evidences of the disease were first considered and discussed. The necessity of an ophthalmoscopic examination in cases of suspected angio-sclerosis in general practice was emphasized, and some cases were related illustrating several point of interest.

Obstruction of the retinal circulation was next treated of in connection with two cases, illustrative of different types of the disease.

The first was one of embolism of the inferior temporal branch of the central artery, occurring in a gentleman aged about 48. The upper nasal quadrant of the field of vision was suddenly lost. A white plug was seen in the affected branch of the artery, which was almost empty below it. The central vision, however, was never impaired and was still normal 15 months later. A few days after the attack, medical examination revealed the presence of a mitral valvular lesion.

Mr. Werner's second case was an unusual one of obstruction of the retinal circulation in both eyes in a boy aged 11. While he was at his lessons, the left eye became suddenly blind, and, three days afterwards, the sight of the right eye

went in a similar way. The ophthalmoscopic signs were those of blockage of the central artery, with breaking up of the blood column in the vessels. In the second stage the left optic disc became swollen to such a degree as to resemble a choked disc, and, in both eyes, white stars of exudation developed at the macula. Perception of light was absent in the right eye for 12 days, and in the left for 4; nevertheless vision improved to 6/36 in the former and to 6/24 in the latter.

The diagnosis was discussed and strong evidence brought forward to show that the disease in this case was tubercular in origin.

In conclusion the interesting subject of sudden temporary obscuration of sight was referred to. The ophthalmoscopic appearances observed during the attacks were summed up, and the cause discussed, including the theory of arterial spasm.

Mr. George Coats described first the normal structure of the central artery and vein, pointing out that in passing through the lamina cribrosa the elastic membrane of the artery breaks up into a feltwork of fine fibrils, while, in the case of the vein, the elastic tissue disappears entirely from the wall. The normal central vein is little more than an endothelium-lined space in the tissues.

Disease of the central artery takes the form of a deposit on the inner aspect of the elastic membrane, of a new tissue composed in varying proportions of cells and fibrils, which encroach on the lumen, usually in an eccentric manner. The elastic membrane itself is often thickened, and elastic fibres are an important constituent of the new tissue. Both the cells and fibrils tend to undergo degeneration: the cells become swollen and fatty, the fibres indistinct and hyalin. Finally, by breaking down, debris-filled cavities may be formed. These changes are always greatest in the outer layers of the new-formed tissue.

The primary lesion is probably a proliferation of the endothelium: in the normal central artery of a young person no other tissue is visible within the elastic membrane. The elastic tissue is probably a derivative of these proliferated cells, the case being analogous to the laying down of new layers of the membrane of Descemet by the endothelium of the anterior chamber.

Evidence of primary disease of the central vein is very rare

even in cases of obstruction of that vessel. Thickening and infiltration of the wall occur, but not usually at the site of obstruction; they are therefore probably secondary, not primary and the cause of the block.

In the retinal vessels the commonest form of disease, at least in cases of obstruction of the central vein, is a thickening of the fibrous tissue of the wall-fibrosis. This is the same condition as is found in the central vein, but it differs from the commonest type of diseases in the central artery, the change affecting the intima in the central, the media in the retinal, arteries. Endothelial proliferation is also found, but more rarely.

It is not improbable that endothelial proliferation is a response to the stimulus of a circulating toxine: fibrosis, a strengthening of the vessel wall to resist increased blood pressure. Hence the frequency of fibrosis in the retinal vessels, which are badly supported and liable, when glaucoma is present, to be nipped at the edge of the cup.

It is probable also that endothelial proliferation is represented in the ophthalmoscopic picture by irregularities of calibre without much apparent change in the vessel wall, while fibrosis, by increasing the reflection from the wall causes brightening of the reflex (silver wire arteries), and in more advanced stages, white lines along the vessels.

Mr. Coats also demonstrated the pathological features of some cases of obstruction of the central vein, showing that in early stages a homogeneous thrombus might be found, which subsequently undergoes invasion and organization from the surrounding connective tissues, or sometimes from the endothelium. Probably the primary cause of most of these cases is interference with the circulation by arteriosclerosis. Cases occur however in which there seems to be a true inflammatory affection of the vein wall, and this accounts for some of the instances in which young persons are attacked.

Two cases were also demonstrated which proved that not all cases of arterial obstruction are due to endarteritis and thrombosis, but that the condition may be due to embolism.

The discussion was continued by Mr. Priestly Smith, Professor Straub, Mr. Bishop Harman, Mr. Richardson Cross (Bristol), Dr. Leighton Davies, Dr. Gray Clegg (Manchester), Mr. Whitehead (Leeds), Dr. Gordon Holmes; and the owners replied.

In the afternoon an extensive series of cases were exhibited and discussed at the Royal London Ophthalmic Hospital. During the Congress the members dined together.

COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF APRIL 19, 1913.

DR. HIRAM R. STILWILL PRESIDING.

Tobacco and Alcohol Amblyopia.

Dr. W. A. Sedwick presented a man of fifty years, who came on account of failing vision. There was a central scotoma in each eye. When the patient first came, five days ago, vision was 15/200 in either eye, improving to 15/80 with correcting lens. The patient had been a fairly free user of alcohol, and had smoked a good deal of tobacco. Trans-illumination of the sinuses was negative. The pupils reacted to both light and convergence, and the tension was normal. There had been no inflammation. The fundus appeared normal, except for a pallor of the temporal side of each disc. The patient had apparently seen quite well until three or four months ago. Wassermann was negative. The patient had been put on iodid of potash and strychnia and had stopped the use of alcohol and tobacco. The case was probably one of tobacco amblyopia.

DISCUSSION. Dr. Spencer thought he saw in the left eye a sharp bending of the vessels at the edge of the disc. Dr. Jackson thought toxic amblyopia the probable diagnosis. Recovery would depend on freedom from tobacco and alcohol and might take several months.

Dr. Strader had seen a case in which in spite of cessation of tobacco and alcohol the patient was much worse after several months. He was a saloon-keeper, spent twelve hours daily in the saloon and was exposed to a very heavy atmosphere of tobacco smoke.

The opinion was generally expressed that the tobacco atmosphere would have an important influence on the eyes.

Dr. Spencer quoted Fuchs as stating that those constantly in an atmosphere of tobacco smoke might have tobacco amblyopia.

Dr. Stilwill suggested that the patient might be benefited by the high frequency current.

Corneal Ulcer Treated with Nitric Acid.

Dr. W. C. Bane presented a patient who had had a small marginal ulcer in the left cornea, which had been treated by application of 20% nitric acid. The ulcer was smaller the next day, and after two days did not take the fluorescein stain.

DISCUSSION. Dr. Neeper referred to a case which had been sent to him recently by an accident insurance company. The man was seeking indemnity from the company on the ground of the ulcer being traumatic. It was stated to have followed a foreign body. The eye now showed two ulcers quite separate and still staining. The fact that staining with fluorescein had continued five or six weeks was rather against traumatic origin of the ulcer.

Congenital Coloboma of Iris and Choroid.

Dr. H. Auflemwasser presented a man in whose right eye there was a typical inferior coloboma of the iris accompanied by slight notching of the lower margin of the lens, and an extensive coloboma of the choroid, reaching almost to the disc. The vision of this eye was half of normal. If the patient looked up the external aspect of the eyeball below was flattened. But the colobomatous area inside the eye was quite deep, the retinal vessels dipping at its edges.

DISCUSSION. Dr. Jackson stated that the depth of the coloboma was especially marked posteriorly, reaching 8 or 10 D., and the external flattening probably corresponded to the anterior part of the coloboma.

Penetrating Steel Injury.

Dr. D. H. Coover presented a machinist, aged 22 years, whose right eye had been injured by a piece of steel on March 20th, 1912. The fragment had entered at the nasal limbus and there had been some pain and congestion for ten days after the injury. About three months after the injury the patient noticed that the iris was turning brown. There had been several short inflammatory attacks. Vision was now 6/20. The eye presented a deposit on the posterior surface of the lens, a yellowish exudate behind the lens and below, and haziness and floating opacities in the vitreous. A skiagraph showed a foreign body 5 mm. back of the cornea, 3 mm. below the antero-posterior axis of the eye, and 5 mm. to the temporal side. Application of the magnet to the eye between the inferior and external rectus caused pain. The eye was quiet.

What should be done? Attempt to remove the foreign body might be followed by destructive inflammation. On the other hand, the foreign body might not only cause loss of vision of this eye, but might produce sympathetic disturbance in the other eye.

DISCUSSION. Dr. Walker thought that the chance of inflammation following an attempt at extraction should be taken; the other eye being subsequently watched for signs of sympathetic disturbance.

An opinion to this effect was generally expressed.

Dr. Bane would enucleate the eye without attempting to remove the foreign body, because of the risk of sympathetic inflammation.

Dr. Jackson recalled a case of foreign body back of the lens in which the patient had come on account of beginning siderosis, eighteen months after the injury. The foreign body had been removed and the eye still had good vision. He would make an incision as far back as possible to avoid the ciliary body, and go in with seissors to cut into the capsule surrounding the foreign body. He thought there was a fair chance of saving useful vision, if previous use of the magnet had not too greatly disturbed the foreign body.

Dr. Hilliard stated that he had seen the patient in May of last year, when it had been stated that the injury had taken place about a month previously. The media were then clear, except a suspicious appearance in the lower part of the eye. The case was given up because X-ray examination was refused. The vision of the injured eye at that time was 20/30.

Dr. Conant had also seen the case in May, at the request of the man's employers. He could not then discover a wound of entrance, and did nothing further. Two or three months ago the man came in reporting failure of vision, and siderosis had begun. X-ray examination had been advised.

Dr. Strader referred to a case of penetrating steel injury, in which another surgeon had reported that X-ray showed the foreign body to have passed through the globe into the orbit. In two months there was marked siderosis, but the lens was absorbed, the eye remained perfectly quiet, and vision was fairly good.

Choroiditis.

Dr. J. A. McCaw presented a man of twenty-eight years, whose left fundus showed extensive choroidal changes and

especially in the macular region. There were extensive pigment deposits. The patient gave a history of a slight injury to the left eye five weeks previously, and stated that he had first noticed blurring of vision of the left eye a week ago. Wassermann test was negative, and von Pirquet was positive. Test of urine show a few pus cells and small granular casts. Two upper left molar teeth were carious, but there were also some diseased teeth on the right side. Vision of this eye was 20/80. There was a suggestion of swelling of the optic disk.

DISCUSSION. The opinion was expressed by several members that the case was not of recent development.

Dr. Jackson remarked that the case was obscure, the fundus disturbances being probably in no way related to the injury. The condition of the nose should be investigated. It did not look like a tuberculous or syphilitic case.

Sarcoma of the Ciliary Body.

Drs. W. C. Bane and W. H. Crisp showed microscopic specimens from the eyeball demonstrated by Dr. Bane at the meeting of February 15th, 1913. The growth was a small-spindle-cell sarcoma of the ciliary body, entirely replacing that structure in the region of the growth and extending slightly into the root of the iris. There was a minute metastasis on the surface of the sclera, but the rest of the eyeball seemed free from invasion. The growth was moderately pigmented. The pigment layer of the retina was very plainly seen running for some distance into the growth; evidently stopping at the point at which the tumor had broken through into the vitreous chamber.

Detachment of the Retina.

Dr. H. R. Stilwill presented a man of 69 years, who had come complaining of cloudy vision in the left eye which had begun about the 4th of April. He could not see in the lower part of the field. The eye had had no previous disease, and no history of injury or strain could be obtained. When seen on the 11th of April there was a large retinal detachment in the upper part of the fundus, covering the upper third of the disk, and just missing the center of the macula. At that time vision was 5/10. The detachment had gradually extended, and vision was now 5/120. Transillumination was negative.

DISCUSSION. Dr. Coover advised tapping the sub-retinal exudate and forcing sterilized air into the vitreous.

Dr. Jackson suggested a similar operation, with the use of physiological salt solution.

Dr. Bane would push the use of potassium iodid. Some years previously he had seen a case in which improvement had occurred under this treatment.

Dr. Sedwick would use subconjunctival injections of citrate of soda.

Iritis Simulating Glaucoma.

Dr. H. R. Stilwill presented a girl of seven years, who had complained of blurred vision in the right eye. There was a general haziness of the cornea, the pupil was moderately dilated, the eyeball was very red and there was some photophobia. The eyeball was not tender and the tension was above normal. The pupillary reflex was feeble, and the fundus could not be made out. According to the father nothing had been used in the eye except a powder given at the drug store to be dissolved in water. This was probably boric acid. Transillumination could not be tried because the child was intractable.

DISCUSSION. Dr. Spencer suggested that the case might be one of interstitial keratitis.

Dr. Neeper would try to dilate the pupil with atropin on the possibility that the pupil had been fixed in a partly dilated condition.

Dr. Coover had seen cases of iritis where the tension was for a while slightly increased.

Dr. Walker thought the case one of cyclitis, causing increased tension, and advised hot applications.

Dr. Jackson remarked that cases of glaucoma in young persons were commonly bilateral, and ran a slow and chronic course. He would use atropin and try to make an ophthalmoscopic examination, and would also investigate the possibility of tuberculosis or intra-ocular tumor.

WILLIAM H. CRISP, Secretary.

AMERICAN OPHTHALMOLOGICAL SOCIETY.

MEETING OF MAY 6, 1913, WASHINGTON, D. C.

The 49th annual meeting of the society was held at the New Willard Hotel, Washington, D. C., on Tuesday and Wednesday, May 6 and 7, 1913.

THE PRESIDENT, DR. MYLES STANDISH IN THE CHAIR.

Degeneration of the Corneas of a Man and His Adult Son.

Dr. Burton Chance, Philadelphia, read this paper.

These cases are examples of nodular degeneration of the cornea as found in two or more generations or in several members of a family. The men were aged 54 and 26 respectively and each had been practically blind since infancy. No other members of their family for five generations were known to have had serious or unusual affection of their sight.

Each of all four corneas was occupied by a large but faint disk which covered the central two-thirds of the corneal area, while the outer third, including the limbus was perfectly transparent and unaffected. The disks consisted of fine, dotted groups of a yellowish-gray flocculent material or coagula, arranged in more or less radiating lines situated beneath Bowman's membrane and in the anterior layers of the stroma, as though resting between the membrane and the stroma. Here and there were glistening points like crystals. At the apex of the summit there were two larger, bubble-like, bodies which projected beyond the general surface of the cornea. The epithelium was intact and glistened. The discoid areas terminated somewhat unevenly in an indefinite radiating network. The center of each disk was condensed, outside of that was a more or less transparent zone, while beyond was another denser portion which ended in more or less diamond-shaped reticulations. The corneal membrane beyond the areas was quite clear and healthy, showing neither infiltrate nor vessels. The crypts of the iris were deep, the reactions prompt. No view of the funduses could be obtained but the vitreous bodies were presumably clear and the retinas believed to be healthy.

The son's corneas presented the same characteristics as the father's except, that the opacities were not so dense, and

were more reticulate. The surfaces were even, smooth and polished and distinctly sensitive.

The opacities were circumscribed and bilateral, of approximately equal size in each eye, and each person's like the other's, except that the son's were less dense, or rather the lines were not so numerous. At first glance they looked like the residue of an interstitial keratitis. At the center of the patches the masses were so close together as to be without arrangement and it was only at the periphery that the reticulation was apparent. There were no signs of inflammation, no pannus nor obliterated vessels. The irises were healthy. There was no criss-cross latticing of fine threads, as in Haab's and Feund's cases; nor pigment dots, as in Doyne and Stephenson's, and the surfaces were smooth, as in Fehr's.

Each man was subjected to the Wassermann and to tuberculin tests, with negative results. And a thorough study of their chemie metabolism showed the same comparative percentages as found in healthy individuals; and so also did the blood-content with the differential countings.

DISCUSSION. Dr. William Zentmayer, Philadelphia: A point I think should be made is the differential diagnosis between different kinds of interstitial keratitis. In naked eye appearance they resemble one another very closely, but with the corneal telescope the changes are quite different. The absence of vascularity which prevents blood channels in the cornea and the total and prolonged involvement of the iris are points against interstitial keratitis. I think in the man's case particularly the condition looked like the sequelae of an interstitial keratitis, perhaps because the process was so much older than in the young man. I think with care they could be diagnosed from interstitial keratitis. As far as the etiology is concerned it is to be looked upon as a hyaline degeneration, not of tuberculous origin. The process resembles somewhat that of nodular keratitis.

Dr. John E. Weeks, New York: A few months ago I presented cases similar to these at the meetings of the Section on Ophthalmology of the New York Academy of Medicine. In the father the degeneration was quite well advanced. That is, the vision was reduced as far as I can recollect to about 17/200, while in the son, who is a man of 21, the vision was 20/70. In this family there were 3 sons and 1 daughter, and 1 other son had defective vision. This condition is the so-

called family degeneration and it is in all probability a condition due to what has been handed down through generations. These cases begin early in life and tend to increase somewhat as the individual grows in years.

Dr. G. E. de Schweinitz, Philadelphia: I would like to say a word as to a matter of therapeutic interest, because Dr. Chance was kind enough to permit me to examine his interesting patients. In a case of similar character—familial degeneration of the cornea—in a man familiar to my colleagues in Philadelphia, I tried for a long period injections of tuberculin. It was once believed by Wehrli to be a form of chronic tubercular disease of the anterior layers of the cornea. There were absolutely negative results from the tuberculin. I also tried in this same patient, who was willing to submit to a great many things, a line of subconjunctival injections, in the hope of influencing some of the deposits, but with negative results. I finally tried both instrumentally and by the fingers a long series of massage experiments, with dionin, etc., and plain massage. The patient was mesmerized into believing that he was somewhat better. He was not. I cannot truthfully say that there was one particle of improvement in the visual power.

Dr. Samuel Theobald, Baltimore: I have under observation now and have had for 12 or 18 months a case similar to the one described. The vision of one eye is more affected than the other. I have tried every conceivable form of treatment, constitutional remedies and local remedies, eserin and constitutionally arsenic and everything that could be thought of. The condition improves at times. Once or twice I thought it might disappear and then it grew worse. The other day the patient came to my office and this was one of the periods when things looked less promising. The cornea is decidedly uneven and opaque. I was in hope that I might hear something that would be of value here. In my case the tension is not what you would call plus, but it has been suggested that benefit might result from iridectomy not only for visual purposes but to improve the condition of the eye by some lessening of tension. I hoped that some suggestions of that kind might be made to throw light on my case.

An Extreme Case of Conical Cornea with Cataract.

Dr. David Harrower, Worcester, Mass., read this paper.

This patient was a man aged 66, who had been affected

by conical cornea for about 25 years. It was one of the most extreme cases I have ever seen and was complicated by mature cataract. The sight was so bad that he had to be led by an attendant. Operation for cataract by extraction of the lens was performed. A good operative recovery was secured and the patient is now able to go about the street alone.

Keratoconus, with Reports of Cases.

Dr. John E. Weeks read this paper, the two papers being jointly discussed.

There are four principal objective methods of diagnosing keratoconus which is in the beginning rather difficult to recognize: (a) Observation with the ophthalmoscope which will disclose a myopia at or near the center of the cornea and a distortion of the retinal image. Observed with the plane mirror the apex of the cone, when the patient looks at the source of reflected light, gives a bright reflex surrounded by changing concentric shadows on slight movements. (b) The retinoscope, which gives the effect of irregular astigmatism, the reflex from the cornea being small at the apex of the cone and elongated into an irregular wedgeshape at the sides of the cone. (c) The keratoscopic examination by means of Placido's disc, the image of the disc being elongated and broadened toward the periphery of the cornea. (d) The ophthalmometer. This is probably the most sensitive test. Various methods of both palliative and operative treatment are advised by different authorities upon this subject. In the study of keratoconus it occurred to the writer that in order to bring about a suitable permanent reduction of the cone by operative procedure it was necessary to reduce the tension of the eye as much as possible and to maintain this hypotension for a long period of time until healing was complete. To this end it was thought best to perform iridectomy, placing the coloboma where it would ultimately be of greatest aid to vision, because of its well-known tendency to reduce intraocular tension, and at the end of one or two weeks to apply the chosen procedure to the apex of the cornea, following this by the use of pilocarpine and a compress bandage. In the five operated cases reported this procedure was followed. About 10 days after the iridectomy the apex of the cone was cauterized in an oval area with its

long axis horizontal with a platinum point heated to red heat in the flame of a spirit lamp. The bandage was applied continuously for three weeks and at night for two months. Analysis of the fifteen cases which I report shows that when the vision has fallen to 8/200 or less, it may be very much improved by the procedure described.

DISCUSSION. Dr. Robert Sattler, Cincinnati: I share with Dr. Weeks, as probably do many, the opinion that the keratoconus is inexorable, that the causes also could not be determined. I have also proved to myself that to prevent keratoconus is impossible. Also, that we can do little towards checking the advance of the symptoms. As far as the operative treatment is concerned we have had some favorable results, but a larger number are not favorable.

Dr. Edward Jackson, Denver: I have within the last week had a case of extreme conical cornea following a perforation of the cornea. The patient was a girl not more than 5 years old. In one eye there was a small proliferation near the outer margin of the cornea and the cornea subsequently became quite conical. In that case the lens had been removed by discission and it leaves a myopia of 17 diopters. The vision is improved somewhat by the concave lens, but it is scarcely adequate for reading large type.

Dr. C. H. Beard, Chicago: About 15 years ago I reported a case which gave me some new ideas in regard to the treatment of keratoconus that I have since put into practice with considerable success. This case a woman, 35 years old, came to me on account of high myopia, 22 diopters in one eye, 24 in the other. With the best correction she got vision of only about 20/100. With a view of relieving her condition I advised removal of the crystalline lenses by discission. I performed several discissions on either eye, meantime keeping the eyes snugly bandaged so that the process took a long time. Much to my surprise when the case was discharged the conics, which were extreme, had almost disappeared. Since that I have used very conservative measures in the management of these cases of keratoconus. With regard to the dystrophic nature of keratoconus, almost all my cases have been in young women of perfectly robust health.

Dr. William H. Wilmer, Washington, D. C.: It has always seemed to me that the use of pilocarpin in keratoconus is illogical. If you have a cone, to contract its base and

lengthen its apex you get improved vision, but pilocarpin is used everywhere extensively and I see no logical reason for its use except to give the patient temporary vision. It increases the keratoconus by the effect of pulling in the base of your cone. If it is a mild case a great deal can be done by three things which are perfectly logical and which do help the condition. The first is making the patient give up eye work. There are many fields open: the orchardist, expert dairyman, the farmer. Make the patient give up his books and go to the farm. Second, correct the change, the conditions of the eye, by glasses having your cylinders plus or double plus, corresponding to the axis of that particular cylinder. Building up the general conditions does help to stay cases in beginning mild cases of keratoconus. My experience has not been that they occurred in robust people. The last six cases I have seen were in anemic cases.

Dr. T. Y. Sutphen, Newark, N. J.: My experience shows that improvement in the general condition seems to stay the disease, while in strumous cases, cases where a catarrhal condition of the system exists and where there is a long continued conjunctival inflammation, the cases have a tendency to grow worse.

Dr. William Campbell Posey, Philadelphia: In operating on conical cornea I aim at producing a large, dense and triangular scar in the base of the cone, making the cauterization densest at the periphery of the cornea and lightest at the apex of the cone. I think it is necessary that one should have a large scar and dense scar. If the pupillary area of the cornea is not covered by the scar it may happen that it will not be necessary to cut out a piece of the iris. Dotting of the cornea is often of value, not only on account of its cosmetic effect, but to cut out aberrant rays of light.

Dr. Allen Greenwood, Boston: I advocate a little earlier operation than seems to be generally done. A patient with vision of a little less than 22/100 is almost invariably bettered by a proper cauterization. I have operated on 4 cases and I am very positive that all 4 of these patients would testify to the great benefit of the operation. One young boy whom I operated on this spring with a vision of 24/100 with a glass, much less without a glass, now has a vision of 20/70 with a very dense white scar, which he can see around and can

read newspaper type. He certainly is very grateful. I think it is better to do the cauterization without waiting too long.

Dr. William Zentmayer, Philadelphia: If one will look back over the literature of 20 years ago, he will find an admirable paper by Dr. James Wallace on "Refraction of Ulcers of the Cornea." Some of the results were brilliant and accomplished by exceedingly high cylinders which were determined after a prolonged course of myotics. I have pursued his method since Wallace brought it forward and I can speak highly of it. Of course it does not take the place of operative interference where there has been breaking down and scarring at the apex.

Dr. John E. Weeks, New York: I am very glad the subject has awakened so much interest. Two of my patients were rather anaemic and in poor health. The others were apparently quite robust. As to the influence of the use of the eyes on the advance of the keratoconus, it is important that the patients should be restricted in the use of the eyes for close work. Outdoor life will help very much. In regard to changes in the eye other than these which take place in the cornea, the eyes in those I have studied have remained normal so far as other tissues are concerned. In regard to operative procedure, if the cauterization is done so as to leave the apex clear, in many cases the visual result will not be very good because the corneal tissue at the apex is frequently hazy. The haziness tends to increase below and an iridectomy, if it is to be of visual value, should be made, in the majority of cases, above on the temporal side. The cauterization done by Posey is good, provided the cauterization of the cone is extensive enough. The principle involved in making the iridectomy is one of reduction of tension and that is also the principle that I endeavor to carry out in the use of myotics.

Interstitial Keratitis of Luetic Origin.

This paper was read by Dr. George S. Derby, Boston, and Dr. Clifford B. Walker, Boston (by invitation).

Interstitial keratitis probably occurs in 1 out of every 200 cases of eye disease. The mode of production is still shrouded in mystery. It is considered by some to be due to irritation by spirochaetæ in the cornea, while others consider it due to the toxins of the disease. This is one of the most discouraging diseases to treat. The lesions are extremely un-

yielding to antisyphilitic treatment: including salvarsan. During the past winter the authors have treated 6 cases of interstitial keratitis with serum from patients who had been injected with salvarsan, but in none could the results be considered encouraging. Energetic antisyphilitic treatment should be carried out in these cases.

DISCUSSION. Dr. Emil Gruening, New York: Dr. Derby remarks that keratitis parenchymatosa is one of the most unpleasant diseases to treat and that the results are not satisfactory. In my experience, which dates back prior to salvarsan and before we did all the social service that we do now in investigating the whole family, I have never seen a case of keratitis parenchymatosa lost. Every case recovers, in my experience, if properly treated generally and locally. If there are toxines in the cornea these toxines make themselves felt in the iris and we often have iritis. This should be treated by instillation of atropia; strong solutions, under the observation of a physician should be used so that the pupil remains dilated. It will not do to send the patient home with a few drops and say "Put this in the eye and come back in a week or ten days." Keep the case in the hospital. All the hospital cases get well. I would say that keratitis parenchymatosa is one of the most hopeful diseases.

Dr. H. D. Bruns, New Orleans, La.: It seems to me that we ought to take part in these debates when they touch on subjects in which we have an especially large experience. As the negroes with us are pretty nearly all syphilitic and their offspring have interstitial keratitis in a wholesale way, I see it incessantly and everlastingly. I agree fully with what Dr. Gruening has said. It is one of the most benign of diseases. I never saw a case that did not get well. I have seen them get well in a few weeks, while others will drag along for months or even two years. It is only by taking a vast number of cases, getting some idea of average duration, then comparing large series of cases treated in various ways that we can arrive at certain conclusions as to whether our treatment is doing good or not. I believe we should employ, and with advantage, a vigorous antisyphilitic treatment, the best being inunctions if possible with Turkish baths repeated and inunctions in large quantity, using the mercury to the point of toleration. Locally I know of nothing but to keep the pupil dilated.

Dr. W. B. Marple, New York: We all know that interstitial keratitis gets well, but it is a question as to whether it gets well any quicker by the use of salvarsan or the old methods of treatment. Up to about a year ago I had the impression that salvarsan was not of any special therapeutic advantage. This year in the cases of interstitial keratitis which came under my observation I gave salvarsan and in two weeks a second and possibly in two weeks more a third injection. While I have not become very enthusiastic about it, I am sure the results are very much better when the dose is repeated.

Dr. Frank J. Parker, New York: I had an opportunity to use salvarsan in a limited number of cases of interstitial keratitis and in all of the cases the drug was given intravenously and routinely repeated at the end of a week. Whether subsequent doses were given or not depended upon the Wassermann test. In 1 case 5 doses were given. In the cases where the Wassermann was not negative after the second dose there was no immediate relief of the inflammatory symptoms. In the cases where the inflammatory symptoms cleared up immediately, almost in every case, the Wassermann was negative.

Dr. R. L. Randolph, Baltimore: I have in mind 4 cases of interstitial keratitis. In all 4 cases the Wassermann reaction was positive. There seemed to be then no doubt as to the presence of lues. In 2 of the cases there was a typical picture of the hereditary form of the disease; in the other two cases, of the acquired form of lues. In the cases of hereditary lues the salvarsan had not the slightest effect so far as I could see. I take the same view as Dr. Gruening as to prognosis. I have never been inclined to regard the prognosis serious as regards sight. I can recall none that did not recover sight.

Dr. George E. de Schweinitz, Philadelphia: As for salvarsan, I have experimented by taking into my wards cases of interstitial keratitis which occurred in young men and in children. All the patients had previously been treated by the ordinary methods. I have never in my therapeutic experience seen the clearing which took place in the corneas of those patients equaled by any other procedure. The salvarsan was given in repeated doses at intervals of 2 or 3 weeks in full doses. In the intervals between the injections of salvarsan the treatment advocated by Dr. Gruening was carried out of mercury and iodide of potassium with the salvarsan.

Dr. Charles W. Kollock, Charleston, S. C.: My experience is that of Dr. Bruns as to syphilis in the negro and the prevalence of interstitial keratitis. Also, most cases of this disease recover. Quite a number recover without any treatment. There is no doubt about that. I mean without any medicinal treatment, if they have the right hygienic surroundings and the right food. I have treated them principally by innunction and not very much by iodide of potash.

Dr. John E. Weeks, New York: We know, those of us, at least, who have had experience, that interstitial keratitis is affected very little by salvarsan. It is affected somewhat, however, and it is affected more markedly in the cases that are most acute. Apparently these cases that are most acute have a greater content of spirochaete. In cases of acquired syphilis the effect of salvarsan is quite remarkable. It has appeared to me that the content in spirochaete in acquired syphilis is greater than in inherited. The use of neosalvarsan is falling into disrepute in my experience.

Dr. S. Lewis Ziegler, Philadelphia: There is no doubt that those cases of interstitial keratitis improve more rapidly under the use of salvarsan than by the use of other methods. But, on the other hand, it is not necessary to stop the other methods. In the cases that I have observed the salvarsan produced a rapid improvement and a rapid reduction of the Wassermann reaction. The intravenous injections produced better results than the intramuscular.

Ophthalmia Artefacta (?)

This was read by Dr. H. D. Bruns, New Orleans, La.

History of a white girl, aged 17 years; no particular evidences of ill health, but of scrofulous type. First came to clinic for catarrhal blepharoconjunctivitis May 13, 1908. Superficial ulcer appeared on skin of both lids of left eye on June 6. Healing was slow, and on August 24 a shallow, angry ulcer of the right lower cul-de-sac invaded the bulbar conjunctiva. On September 9 a black spot in its depths was supposed to be the exposed choroid. On September 18 the ulcerated area became suddenly much greater, extending from the corneal limbus down into the lower cul-de-sac and up the palpebral conjunctiva to the free edge of the lid, with an average width of quite one-quarter of an inch. The ulcerated surface looked as though stained with ink, the central and deepest portion of

a still more intense black. The discoloration was clearly perceived to be due to tissue necrosis. These attacks continued with varying frequency. On July 20, 1910, similar lesions appeared on the skin of the body. The patient was now admitted to the ward of Dr. H. E. Menage, one of our consulting dermatologists, who considered the skin lesions self-inflicted (New Orleans Med. & Surg. Jour., Vol. LXIII, No. 6). Nothing noteworthy could be found by the neurologist, the laryngologist or the internist. Examination of smears, cultures and bits of tissue were negative. The injection of diphtheria antitoxin, and the ocular tuberculin test, applied by Calmette's own hand, were without result. All forms of treatment were unavailing. Nebeculæ, leukomata, and symblephara followed, and vision was greatly impaired. Twice, successful operations for symblepharon were performed, but the repairs were swept away by gangrenous ulcerations. Although it seems incredible that a person would slowly destroy both eyes, reducing herself almost to blindness, while month by month the gradually growing calamity of her own act might be perceived and appreciated; that she should submit herself to four trying, if not painful, operations and the tedium of recovery, and then maliciously lay waste her own comfort; yet, in spite of this incredibility, I see nowhere to turn from the conclusion of my colleague, Dr. Menage; that, as the skin lesions were self-inflicted, dermatitis factia, so by analogy the eye condition must be called ophthalmia artefacta; and this is my excuse for presenting the case, and so putting it on record.

DISCUSSION. Dr. F. H. Verhoeff, Boston: Several years ago I saw a case that was so similar to Dr. Bruns's that I am wondering whether it was not a sister or the same case that finally got into his hands. This was a young lady, also scrofulous. When I first saw her she had a very slight inflammatory condition of the conjunctiva of which I made light. I think that is the secret of her trouble. Two or three days later I found her in the hospital and she was suspected of having secondary syphilitic lesions all over the skin. In addition to that she had a condition of the eye that I have never seen before—a gangrenous appearance extending over the corneal limbus, to the equator on one side. The case was suggestive of hysteria. The skin lesions looked like keloid

sears. The patient said they had a habit of bleeding spontaneously in a miraculous manner. I had her put in a room and a nurse to watch her closely and one day the nurse found her finger-nails stained with blood and it was then easy to trace the eye condition. She had taken her finger and dug into the bulbar conjunctiva, into the sclera and laid bare the sclera back to the equator. Then the neurologists were called in and they confirmed hysteria. I advised spanking as treatment. The neurologists did not agree. I do not know what the final outcome of the case was.

Dr. H. D. Bruns, New Orleans: I do not think this girl could have been any relation to Dr. Verhoeff's girl; she never had been out of the state; she did not belong to the class that could travel. She had not the means to get out of New Orleans. I treated her for almost 2 years and the last condition of this patient was worse than the first.

The Prophylaxis of Ocular Birth Infections.

Dr. Robert Sattler, Cincinnati, read this paper.

Bacteriology now directs a more certain diagnosis and, in accordance therewith, assigns ocular birth infections to non-specific and to specific or gonococcal organisms. The term ophthalmia neonatorum should be discarded. Non-specific organisms comprise a larger contingent, and specific or gonococcal a smaller but more variable one, or 50 per cent or less, of the total of all birth infections. The entire subject had been invested with a silly and false sentimentalism on the part of many social science workers and members of the medical profession. We have a fairly reliable prophylaxis for non-specific organisms, but a next to impossible one for specific or gonococci. Non-specific infections will and can never be completely wiped out, as the causes which produce them will repeat themselves, but their gravity and number can and will be more certainly reduced in the future. Specific or gonorrheal infections will continue undisturbed their destructive work and defy the best prophylactic measures at present at our command, and claim their quota of infantile eyes. Infantile ophthalmogonorrhea is as heretofore the same public menace and a preventable outrage upon helpless infancy. Now as formerly it reaches and maintains a numerical level which fluctuates but little.

DISCUSSION. Dr. Lucien Howe, Buffalo, N. Y.: It

behooves us as members of the American Ophthalmological Society to make ourselves prominent in advocating prophylactic measures in our different states. To the effect that children born in public institutions shall have some form of prophylactic treatment used. These children are the wards of the state and the state has a perfect right to say what shall be done.

Dr. George F. Fiske, Chicago: I would say a word in regard to the use of nitrate of silver, which has been advocated for a number of years. I have seen myself 4 cases where the instillation of 2% nitrate of silver has caused ulcers on the cornea in 24 hours. It might cause trouble and it should be watched carefully.

An Unusual Case of Staphylococcus Conjunctivitis.

This paper was read by Dr. William H. Wilder, Chicago.

By invitation, Dr. David J. Davis, of Chicago, gave the bacteriological findings in the case.

A frail colored woman, aged 30, had suffered for 5 years with conjunctivitis which showed alternate exacerbation and improvement but was resistant to various forms of treatment. A peculiar feature of the case was the presence of a greenish exudate which formed rapidly upon a granulomatous mass in the inferior fornices. The patient was tuberculous, one kidney having been removed for this condition, but there was no evidence of tuberculosis in the conjunctiva. The eye condition was found to be due to staphylococcus infection, pure cultures of this germ having been found. An autogenous vaccine was prepared in September, 1911, and a course of vaccination with this carried out. In two months the eyes were healed.

DISCUSSION. Dr. V. H. Verhoeff, Boston: I had an opportunity to glance at those specimens and I believe that the staphylococcus had very little to do with the condition. It seems a secondary invasion. I think these other bodies are very important and it seems to me they are evidently the cause of the lesion. They are fairly numerous and many of them are stand-like in appearance. I am strongly inclined to believe they are the cause of the condition, giant cells setting up reaction around them. I would hold to the view that it was a vegetable parasite of an unusual kind.

Dr. Lucien Howe, Buffalo, N. Y.: In the copy of the *Transactions* which appeared 10 years ago there appears a

description of a case very similar to this. A child came to the infirmary with a history very similar to this; the exudate was so marked that it was possible to remove it one day and the next day it would return. That child went to the blind asylum. A brother of that child became infected, and developed exactly the same thing.

Dr. Wilder, Chicago: Dr. Davis made the examinations with careful experiments for sporocosis, blastomycosis and various tests for aspergillus and nothing definite was obtained. An explanation of the case is, I think, a curious condition in which the individual is excreting a pigment substance, probably the tissues themselves have some chromogenic power. Possibly it may be allied to those cases in which there is a chromogenesis of the skin.

A Case of Congenital Apron of the Palpebral Conjunctiva.

Dr. Henry H. Tyson, New York, read this paper.

A woman, aged 40 years. Upon aversion of upper lid of left eye the tarsal portion of the conjunctiva presented an appearance as if a fold of conjunctiva had been pinched up with forceps, and had been pressed back against the tarsus, and had adhered to it. The fold extended the entire length of the lid. The majority of cases reported were from eastern Europe.

Report of a Case of Bilateral Congenital Ptosis Relieved by the Motaïs Operation.

Dr. B. R. Kemmon, Norfolk, Va., read this paper.

The excellent result secured warrants the report of this case. In a previous case the de Grandmont operation failed to correct the deformity, although the ptosis in two other cases was relieved by the Panas operation. The objection to the latter procedure is that it causes more or less disfigurement, and may leave a permanent annoying fistula. The patient, aged 6, had a congenital ptosis of both eyes of such marked degree that the lids were separated only 3 mm. at their centers, and only the lower border of the pupils showed in the palpebral fissures unless the head was thrown back about 20 degrees. The technic followed was that given by Dr. H. D. Bruns in his paper on this operation, except that the middle two-fourths instead of one-third of the superior recti was transplanted, as the muscles seemed quite small, and, instead of cutting the stitch, it was twisted each day until it came away. Two photo-

graphs were taken, 3 years apart, the first just previous to the operation, and the other about a year ago, which shows that the result is permanent. It has not changed in the least since the reaction following the operation subsided. The movements of the eyes upward are somewhat, but very slightly, impaired.

DISCUSSION. Dr. E. E. Holt, Portland, Me.: I had a case several years ago in which three operations had been performed on the left eye. I operated very much as the author described and obtained a very satisfactory result so that the patient is satisfied.

Dr. Edward Jackson, Denver: I have done Motais' operation in 3 cases and I think that on the whole it is the most satisfactory operation for cases to which it is suited, cases of complete paralysis of the elevator of the upper lid and the eye; otherwise in good condition. Like Dr. Kennon I have used about half of the middle tendon to attach to the upper lid. The last operation that I did was on a monocular case and the result I think was thoroughly satisfactory. There was a little diplopia the first few days after the operation which quickly passed away but since then there has been no complaint and it has been 2 or 3 years since that was done. For a time after the operation the effort to close the eye tightly attended with a rolling up of the eyeball causes the upper lid to be lifted and a peculiar pulling up of the upper lid. In a case I had 5 or 6 years ago, after a few months that had passed away entirely and the control of the lids was just as perfect in this young man as in any of our lids. He closes his eyes without retraction of the lids.

Dr. H. D. Bruns, New Orleans: It is a great pleasure to me to find that somebody is beginning to do Motais operations. There was quite a period when I could see in the eyes of my audience that they listened to what I said of its advantages with a considerable grain of salt. I have done the operation 12 or 13 times. Of course I failed in my first. After some experience I had success unequalled by any other method of managing this unfortunate condition.

Discussion of the Crystalline Lens.

Edward Jackson, M. D., Denver, Colo.: The procedures for cutting or breaking up the crystalline lens are rather loosely described in our standard works on ophthalmology and they are often executed without attention to details which will de-

termine their safety, and the success that will be attained. Dissection of the lens aims to cause disintegration of the lens substance, so that it may ultimately be removed by absorption. The change in the lens substance begins with clouding and swelling. It gradually becomes more opaque, friable and liquid; and this is followed by absorption. The eye is prepared by full dilation with atropin and local anaesthesia by two instillations of a 4 per cent. solution of cocaine. Perfect steadiness of the patient is desirable and to this end some recommend general anaesthesia, but I have not encountered serious difficulty from movements of the eyeball during operation which has generally been done under local anaesthesia. As to the introduction of the needle I have of late years introduced it through the outer or outer lower portion of the limbus starting one-half to one millimeter back from the clear cornea. The needle should be passed parallel to the plane of the iris until the edge of the pupil is reached, then with the back of the needle towards the iris the point is depressed until it touches the capsule and then is pushed directly forward as near as may be to the center of the lens nucleus. It is then directly withdrawn. This first needling generally starts the process by which the lens is to be removed and it tests the probable reaction of the eye to such interference. The passing of the needle in as far as the center of the nucleus is not of great importance in young children, but it is important in older patients where a firmer nucleus is present and makes the removal of the lens by absorption slow and difficult. At the second operation the aim is chiefly to disintegrate the nucleus. The point of entrance is practically the same, but after the needle is carried into or through the nucleus it is turned and made to cut up and down so that the nucleus may be broken into several fragments. Safety and complete success were attained by allowing sufficient time. In young children three operations will usually be sufficient but in these as well as in older patients twice that many may sometimes be required. In young children it should be understood that it may take six months for the desired result, while in older persons it is better to allow a year. The method is not one to be advised for patients living at a distance nor for those who must be rid of a cataract at a certain definite time, though it is the best method and the one causing the least inconvenience or disturbance of ordinary occupation.

After needling, the other eye should not be used for exacting work during the period of reaction, but it need not be closed and even the eye operated on is better freed from all dressings within 24 hours. I have had two patients successfully treated by needling after 40 years of age and up to that age it is to be considered a standard therapeutic resource. Under 30, if not excluded by lack of the time required, it is the method to be first considered.

DISCUSSION. Dr. S. Lewis Ziegler, Philadelphia: I can endorse Dr. Jackson's method of making these operations on soft cataract. I may say, however, that I do not always confine myself to making the puncture through the periphery, sometimes using the cornea if I find it is wise to do so. In other words I do not think that it is so dangerous that it should always be evacuated. I use my knife-needle, probably because I am more accustomed to it and make the ordinary V-shaped incision, not so large as it would be in making capsulotomy. I generally make 3 operations at intervals of 3 weeks. For fixation in children, if we do not wish to etherize, I think there is nothing so good as a small horseshoe-shaped forcep. You can fix with this perfectly, and the patient can't get away if the nurse holds the head. I do not think it is possible to do any harm to the eye with that forceps. I prefer that to etherizing under all circumstances, if it is possible.

Two Cases of Chronic Glaucoma Treated by Iridotaxis.

Dr. David Harrower, Worcester, Mass., read this paper.

I have recently performed the operation described by Borthen (*Archives of Ophthalmology*, Vol. XL, No. 4, p. 405) upon 2 cases of chronic glaucoma with strikingly good results.

DISCUSSION. Dr. S. D. Risley, Philadelphia: I think that what we are after here is the truth in these matters and we all come here for help and I listen with great interest to any procedure introduced by Mr. Critchett, Sr., of London, which calling upon my own experience in other directions I would hesitate very much to willfully perform any operation which had for its object the incarceration of the iris in the wound.

Dr. Samuel Theobald, Baltimore: This reminds me of a procedure introduced by Mr. Critchett, Sr., of London, which he called iridodesis. It was done where there was a central corneal opacity, the iridectomy being made for visual purposes. The iris was seized through a small opening in the anterior

chamber in the periphery and a fine thread pulled through; there was a slough and adhesion to the corneal wound. It seemed to be all right. He abandoned it because every now and then a case of sympathetic ophthalmitis resulted. I do not think that the inclusion of the iris is a factor. If we get a filtering cicatrix, we keep the tension down.

Dr. Edward Jackson, Denver: I think that the point that Dr. Theobald has just made is perhaps the most important in reference to this operation. A subconjunctival prolapse of the iris is totally different from one where the iris is exposed outside of the conjunctiva and simply covered by exudate. If it is covered by a broad flap of conjunctiva so that the iris is quite removed from the peripheral wound, the seriousness of it is in my experience totally different. While I have not attempted to do Borthrn's operation, several times in chronic glaucoma, where already there was complete loss of vision and where it was doubtful whether an iridectomy would give a good result, I have proceeded to drag the iris into the angle of the wound and cut it off and then drag the iris into the other corner and cut it off and be careful to leave the iris caught in each angle of the wound. I think in every one of these cases I obtained a filtering scar in the cases I tried before I got permanent reduction of tension.

Fourth Series of Injuries from Foreign Bodies Examined by the Roentgen Rays, with Results of Operation.

This paper was read by Dr. William M. Sweet, Philadelphia.

Dr. William M. Sweet reported a fourth series of cases of injury of the eyes by foreign bodies examined by the Roentgen rays, with the results of operation. Of the 280 cases, the foreign body was situated in the lens in 7, in the iris in 2, in the ciliary region in 19, near the equator in 51, at the posterior part of the eyeball in 73, and in the orbit in 33. In 95 cases there was no body shown by the rays. Including the cases reported previously, the total number of injured eyes was 982, in 719 of which the injury was caused by iron and steel, in 60 by copper or other non-magnetic metal, in 73 by shot, and in 32 by glass. Of the 280 cases in the present series, 65 eyes required enucleation, in 12 no operation was attempted or failed, but the eyes were not removed; and in 23 the foreign body was in the orbit. In 20 vision of 6/12 or better was se-

cured, 16 between 6/12 and 6/60, 5 counting fingers, 32 light projection, 5 no light perception, but eyeballs of normal size and 7 eyeballs shrunken. In 61 cases from the previous reports which had been under observation for periods from 5 to 13 years, the vision was 6/6 in 4, 6/9 in 4, 6/12 in 1, 6/18 to 6/30 in 3, 6/60 or less in 7, counting fingers in 5, good light projection in 5, imperfect light projection in 11, no light perception but eyeball of normal size in 6, eyeballs shrunken in 10. Five cases in which the eyes were saved in the previous reports subsequently required enucleation.

A Contribution to the History of the Magnet as Applied to Ophthalmic Surgery.

Dr. H. G. Sehrman, Cleveland, read this paper.

A foreign body in the eye is a great menace not only to the injured eye but to the other one also. On June 22, 1894, there was brought to me a girl who had had a piece of steel pin broken from a rapidly revolving machine penetrate and lodge within the eye. The only available magnet was a small one devised by Gruening but this gave no response. I then consulted Mr. Hammer of the Brush Electric Light Plant and requested him to make a magnet of sufficient power. He directed his chief electrician, Mr. Adams, to construct a magnet. This consisted of a bar of Norway iron, 18 inches long and 3 inches in diameter, wrapped with hundreds of feet of fine copper wire, properly insulated. The magnet was energised by the current from the street, the voltage being sufficiently reduced by a transformer and a rheostat of 30 coils of iron wire. The patient's head was brought within 6 inches of the magnet and the current turned on. I had not thought of removing the body except by incision, the magnet being used for diagnosis only, but some hours later the patient complained of a pricking sensation under the lower lid and search revealed a black point sticking through the sclera. This was removed by a slight incision and in a week the patient was well. This magnet was stronger than that of Haab which was at that time unknown to me. Although a report was made by me in the New York Medical Record, Vol. 48, p. 212, no mention is made of this magnet in the literature referring to this subject.

(The above two papers were jointly discussed.)

DISCUSSION. Dr. Samuel D. Risley, Philadelphia: I rise not simply, to discuss the entire subject of removal of for-

eign bodies, but to call attention to a paper which I presented before the Society several years ago, insisting upon it that these foreign bodies should first be localized and then removed from the scleral juncture and in that paper I pointed out the many reasons for this. If a foreign body should be drawn into the anterior chamber by any devious route it might select, we would only increase the canal and increase the virulency of any infection it might have. Unless the foreign body is in the anterior chamber or lens itself I have never removed the foreign body from the eye with anything but puncture. Dozens of times I have been able to touch the foreign body itself with the point of my knife when I made the scleral puncture and have picked it out.

Dr. E. E. Holt, Portland, Me.: I think I was the first to present a series of cases of removal of foreign body from the eye in the early 90s. I used the magnet modified by Hirschberg. The earlier we get at the piece of steel in the vitreous the better it is for the eye. If you get severe pain after removing a piece of metal from the interior of the eye and the eye begins to soften, I do not think there is any use in trying to save the eye.

Dr. Edward Jackson, Denver: Blindly setting a powerful magnet to draw out a foreign body of unknown size and position is not worthy of the present stage of development of ophthalmology.

Dr. John E. Weeks, New York: The tendency this morning is to advocate the removal of foreign bodies through the sclera. Prof. Haab, as you know, takes the opposite view. I really think that there is a great deal of merit on both sides, but I do not think we ought to make any firm rule in regard to the course, the tract, through which we should remove a foreign body. I think every case should be decided on its merits and in many cases we can do less injury by removing through the anterior chamber than through the sclera, choroid and retina. In not a few cases the removal of a foreign body by the route through the anterior chamber is attended by almost no traumatism. Simply the passage through the zonula and the foreign body is brought into the pupillary area and removed through an incision in the cornea. The round pupil is maintained and the injury is at a minimum. I would suggest that no fast rule be entertained, but every case be treated on its merit.

Dr. W. E. Lambert, New York: I would emphasize what Dr. Weeks said that we cannot lay down any hard and fast rule. There is one point I would mention as an important factor in selecting the method, that is, as to the size and form of the foreign body and somewhat dependent upon the length of time it has been in the eye. I agree with Dr. Weeks entirely that we meet many cases where the foreign body is small, that the extraction through the anterior portion of the eye is the

(To be continued.)

CORRESPONDENCE.

Chicago, May 27, 1913.

EDITOR OF THE OPHTHALMIC RECORD,

Dear Sir:

Recently I have heard from several sources that Professor Schiötz feels that his name is not prominently enough connected with the instrument now publicly known as the "Gradle Tonometer." My article describing the instrument (OPHTHALMIC RECORD, September, 1912) states emphatically that mine is but a mechanical modification of the original Schiötz Tonometer, but it has come to be known under my name, chiefly because of the commercial advertising of the instrument.

If I have unwittingly offended Professor Schiötz, (whose scientific achievements are such as to place him beyond the suspicion of petty jealousy) I am very sorry. I have not yet received an answer to the letter that I have written him on this subject.

The name is but incidental, for "the play's the thing." Whether the instrument be known as the "Gradle Tonometer" or the "Gradle Modification of the Schiötz Tonometer," the fact still remains that I have instituted several mechanical modifications of the Schiötz Tonometer that render the instrument far more practical for daily clinical use without affecting its accuracy. In the future, the manufacturers who make the instrument under my direct direction and supervision will advertise it as "The Gradle Modification of the Schiötz Tonometer."

Trusting that you will find room for these few lines, and that they will close an unpleasant incident.

I remain,

Yours very truly,

H. GRADLE.

NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Building, State and Madison Streets, Chicago, Ill.

Dr. Alfred N. Murray has been re-elected secretary of the physicians Club of Chicago.

Mr. P. Verdon has received the appointment of house surgeon at St. Thomas' Hospital, London.

Dr. D. C. Bryant of Omaha has been elected president of the Nebraska State Medical Association.

Dr. J. A. Stucky of Lexington, Ky., has been elected vice-president of the Kentucky Society for Social Hygiene.

Dr. J. W. Austin of High Point, North Carolina, has limited his practice to diseases of the eye, ear, nose and throat.

Mr. I. Forrest Penman has recently received the post of house surgeon to the Birmingham and Midland Eye Hospital (England).

The North Carolina State Institution for the Blind will erect a new institution upon the eighty acre tract recently purchased near Raleigh.

Dr. George Mackay is to retire from the post of ophthalmic surgeon to the Royal Edinburgh Infirmary and will be succeeded by Mr. J. V. Paterson.

Mr. Edgar Stevenson is to be the medical referee, for the County Court Circuit No. 29 (England) in eye cases under the Workmen's Compensation Act.

Carl V. Hess of Würzburg will present a paper on the "Affections of the Eye Produced by Undue Exposure to Light" at the International Medical Congress which meets in London in August. At this same meeting visual defects of school children will also receive consideration.

Dr. David Coggin of Salem, Mass., who for many years was

head of the Eye and Ear Department of the staff of the Salem Hospital, died in that city May 7th, aged 70.

Dr. Lee Wallace Dean, professor of ophthalmology and otolaryngology in the Iowa State University, was recently elected president of the Iowa State Medical Society.

Dr. F. C. Todd of Minneapolis, Donaldson Building, is chairman of the Committee of Arrangements for the meeting of the American Medical Association in that city June 17th.

Dr. R. Parks White of Fort Wayne, Ind., died recently at his home in that city. Dr. White was eye and ear surgeon of the Pennsylvania Railroad and was well and favorably known.

Dr. George H. Powers of San Francisco, died May 4th, aged 72. Dr. Powers was emeritus professor of ophthalmology in the University of California and pioneer specialist of San Francisco.

According to a Milwaukee newspaper, an oculist of that city claims that "pink-eye" is caused by the careless use of face-powder by women, the gritty particles of the powder acting as a mechanical irritant.

The position of president of the section of ophthalmology of the Seventeenth International Medical Congress made vacant by the death of Sir Henry Swanzy, has been filled by the appointment of Sir Anderson Critchett.

At the recent meeting of the Eye, Ear, Nose and Throat Section of the Illinois State Medical Association, which was held in Peoria, Dr. H. W. Woodruff of Joliet was elected president and Dr. C. B. Welton of Peoria, secretary.

The Annual Meeting of the Illinois State Medical Society was held at Peoria May 20th, 21st and 22nd. The Eye, Ear, Nose and Throat Section presented a very profitable program. On the afternoon of the first day a large operative clinic was held, the following surgeons operating: Drs. Frank Allport, Wm. Ballenger, H. W. Woodruff, Joseph Beck and J. R. Fletcher.

A new journal entitled "Zentralblatt für die gesamte Ophthalmologie und ihre Grenzgebiete," will be presented by Dr. A. Bielschowsky and Dr. F. Schieck in January, 1914. This journal will follow the general lines of the "Zentralblatt für die gesamte innere Medizin und ihre Grenzgebiete" and the "Zentralblatt für die gesamte Chirurgie und ihre Grenzgebiete." The Heidelberger Ophthalmologische Gesellschaft will have in this new journal its official organ.

It is announced that the Washington Eye, Ear and Throat Hospital is now open at No. 4 Iowa Circle, Washington, D. C., with the following medical staff:

Dr. Oscar Wilkinson, Surgeon-in-chief.

Dr. T. F. Fickliffe, Assistant.

Dr. I. P. Hunt, Assistant.

Dr. B. S. Polc, Assistant.

Consulting Surgeons: Dr. C. R. Luce.

Dr. W. P. Carr.

Dr. O. Combe.

Dr. C. S. White.

Anesthetists:

Dr. H. L. Taylor.

Dr. Thos. Lowe.

Consulting Physicians:

Dr. I. P. Hunt.

Dr. Ph. Roy.

Dental Surgeon:

Dr. Wm. Barton.

Dr. W. Skimkins.

It is proposed to honor the late Prof. J. V. Michel by placing a bronze bust in the University Eye Clinic in Berlin where he labored for so many years. The bust is to be placed with those of his predecessors, A. von Graefe and Schweigger. All of Prof. V. Michel's students, friends and co-workers are invited to contribute to the fund being collected for the purpose. Contributions are to be sent to Prof. Hethey, Berlin, Wilmersdorf, Kaiserallee 23. The following are sponsors for this fitting memorial to a great man: Hofrat Dr. v. Forster, Nürnberg; Professor Dr. Haab, Zürich; Professor Dr. Helbron, Berlin; Geheimrat Professor Dr. v. Hess, München; Professor Dr. Hethey, Berlin; Professor Dr. Krückmann, Berlin; Geheimrat Professor Dr. Kuhnt, Bonn; Professor Dr. Landolt, Paris; Geheimrat Professor Dr. v. Leube, Stuttgart; Professor Dr. v. Schjerning, Excellenz, Generalstabsarzt der Armee, Berlin; Dr. Schmidt, Excellenz, Generalstabsarzt der Marine, Berlin; Dr. Stöltzing, Hannover; Geheimrat Professor Dr. Wagenmann,

Heidelberg; Professor Dr. Denig, New York; Professor Dr. Wessely, Würzburg.

NOTICE.

"Wanted—Assistant in eye, ear and throat work. Must have thorough education, special training, splendid references, and be a good refractionist. H. H. Briggs, M. D., Asheville, N. C."

NOTICE.

Wanted.—A bright young or middle-aged eye specialist who can do operative work on eye, nose, throat and ears.

A good business connection can be made by the right man. Address with fullest particulars, The C. A. Hoffman Company, 814 Nicolett avenue, Minneapolis, Minn.

BOOK NOTICES.

The Origin of the Spherical Refraction of the Human Eye (Hypermetropia—Emmetropia—Myopia), by Dr. Adolf Steiger, Zurich. 15 Illustrations. Published by S. Karger, Berlin, 1913. Price, bound, M. 20.

The Catarrhal and Suppurative Diseases of the Accessory Sinuses of the Nose, by Ross Hall Skillern, M. D., Philadelphia, Professor of Laryngology, Medico-Chirurgical College; Laryngologist to the Rush Hospital; Fellow of the American Laryngological, Rhinological and Otological Society; Fellow of the New York Academy of Medicine; Member of the Society of German Laryngologists, etc., etc. Price \$5.00. Philadelphia and London, J. B. Lippincott Company.

Surgery of the Eye, a Hand-Book for Students and Practitioners by Ervin Török, M. D., Surgeon to the New York Ophthalmic and Aural Institute; Ophthalmic Surgeon to Beth Israel Hospital; Consulting Ophthalmologist to the Tarrytown Hospital, and Gerald H. Grout, M. D., Assistant Surgeon to the New York Ophthalmic and Aural Institute; Instructor in the Eye Department, Vanderbilt Clinic; Consulting Ophthalmologist to the Bellevue Hospital, First Division. With 509 original illustrations, 101 in colors, and two colored plates. Lea & Febiger, Philadelphia and New York, 1913.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.) G. W. Mahoney (P. & S.)	*Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Tusey, N.W. U Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wipperrn (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wipperrn (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipperrn (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. Allen Barr (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.; Chicago Clinical School, 819 W. Harrison Street.	County; Cook County Hospital, W. (Poli.) Chicago Policlinic and Hospital, 174 E. Chicago Avenue.	Rush; Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.; Chicago Eye, Ear, Nose and Throat College, Washington and Franklin Streets. Clinics all day.	P.-G.; Postgraduate Medical School of Chicago, 240 Dearborn Street.	St. Luke's; St. Luke's Hospital, 1416 Indiana Avenue.
	N. W. U.; Northwestern University, 2431 Dearborn Street.	

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXII

CHICAGO, JULY, 1913

No. 7, New Series

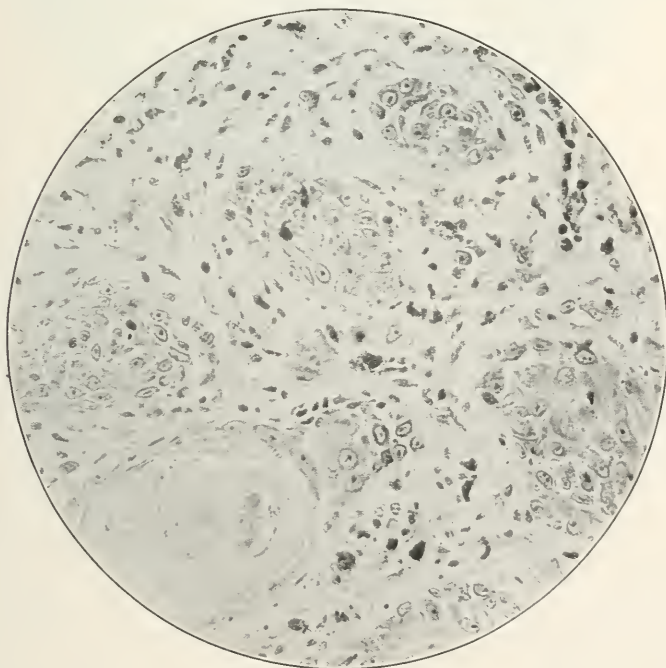
(From the Pathological Laboratory of the Montreal General Hospital.)

A CASE OF SPRING CATARRH: A PATHOLOGICAL REPORT.

(ILLUSTRATED.)

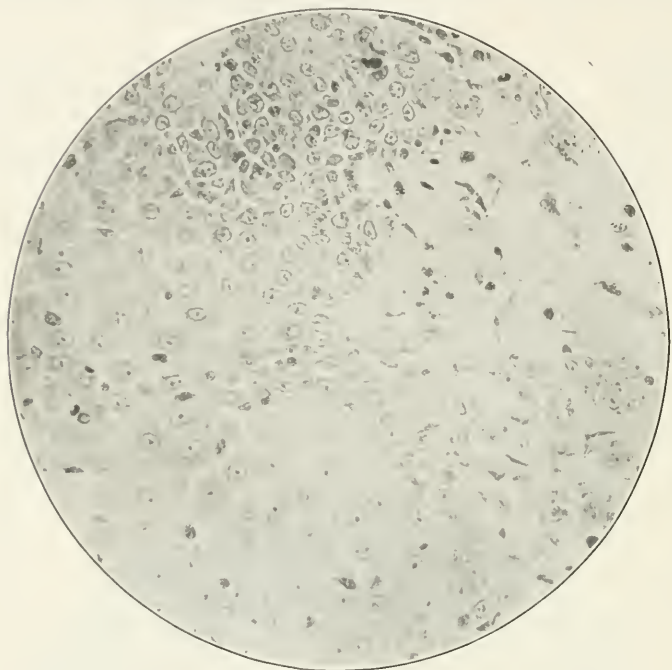
BY HANFORD MCKEE, MONTREAL. LECTURER IN THE DEPARTMENT OF PATHOLOGY AND BACTERIOLOGY, MCGILL UNIVERSITY.

J. P., a young man, consulted me, complaining that for two or three days his eyes had been watery and very itchy.



This attack occurred during a hot spell in September. The palpebral conjunctiva was normal, except for slight congestion.

The bulbar conjunctiva presented a very interesting clinical picture. On the right eye, at the outer edge of the cornea, was a large, red, uneven, hard nodule which extended into the cornea. At the inner side was a similar nodule (Figure



1). There was a characteristic scar on the outer border of the cornea. The so called milky appearance of the tumors was very marked. On the left eye was a large nodule to the outer side, and a large scar on the cornea. The eyes were exceedingly irritable, the epiphora was very troublesome, and the patient complained of the very uncomfortable itchiness. The history which he gave was characteristic. For twelve years this inflammation had occurred every spring, and bothered him until the onset of cold weather in the fall.

A bacteriological examination was made. The smear preparation was negative, while the cultures showed bacillus xerosis and a few gram positive cocci. A piece of one of the nodules was obtained, fixed in Zenker's solution, and cut in paraffin. The most noticeable histological changes were as follows: (1) the epithelium was thickened to three or four times its natural depth, (2) It dipped into the tissue beneath, giving the well known epithelioma-like picture. (3) Beneath

the epithelium were foci of degeneration. There was also fragmentation of the connective tissue, with collections of basic staining debris, leucocytes, lymphoid and plasma cells. In-growths of new capillaries were also noted. (4) The deeper



parts, too, were infiltrated with plasma cells, and eosinophiles. There was a marked preponderance of the latter, which were often seen between the epithelial cells. (5) Plasma cells were also found in follicle-like groups, but these were very different from the typical lymphoid follicle. We had, then, the histological picture of a chronic inflammatory process with a great deal of infiltration, necrosis, and destruction of fibrous tissue, followed by repair and down-growths of the epithelium. As a result of the changes in the underlying tissue, the epithelium had become secondarily diseased: it had proliferated and extended into the deeper parts. I take great pleasure in thanking Dr. S. B. Wolbach, a former director of the laboratory, for his assistance.

Figure II, photomicrograph, shows the thickening of the epithelium. Figure III shows the epithelioma-like structure of the tissue.

TWO CASES OF SNOW-BLINDNESS.

BY GEO. H. MATHEWSON, M. D., MONTREAL, CANADA.

Snow-blindness is, as a rule, seen only in high latitudes, or high altitudes, for it is mainly in such regions that one finds large areas of snow in the presence of intense sunlight, hence the records of Polar expeditions and of mountain-climbing give much prominence to the discomforts of this disease.

The symptoms given in the current ophthalmic text-books, in which it is classed among the diseases of the conjunctival are stated to be lachrymation, burning, increased secretion with photophobia, and in some cases superficial ulceration of the cornea.

When one reads the accounts of the discomforts caused to travelers by the disease, it is clear, I think, that in all severe cases the cornea must be involved since conjunctival injury could not produce pain and photophobia such as they describe.

The condition is of course a form of sunburn of the conjunctiva and cornea, and the skin of the face is always burnt too. I believe the corneal trouble is the result of a blister or bleed of the corneal epithelium (corresponding to the blisters caused by sunburn on the skin). This blister bursts very early and leaves a shallow very painful ulcer.

The inhabitants of northern countries know the danger of exposing their eyes to the intense sunlight in spring, and have developed a variety of inventions to protect the eyes of which perhaps the commonest consists in wearing a pair of bone goggles which are blackened and provided with a narrow slit to admit the light.

My two cases, which were seen in the same week, are remarkable because they occurred in so low a latitude as the neighborhood of Montreal, and at so late a date (April). On April 3, 1911, R. H., an Englishman, 47 years of age, came to my Clinic at the General Hospital complaining of pain in the eyes, which had come on a few hours after having walked a good part of the day along the railroad track amid the new fallen snow—some 50 miles from Montreal. The man's face and eyelids were *red* and swollen, and there was a mild conjunctivitis, but more interesting was the presence of a large shallow ulcer below the center of the cornea in each eye. These ulcers were roughly about 3.5 mm. by 1.5 mm. in extent, the long axis being horizontal. They correspond with that part

of the cornea exposed to the glare from the snow which reached the eye through the partly-closed lids.

The second case, J. M., also an Englishman, seen two days later, had been exposed to the sun on the same day as the other man. His right eye had a largely shallow ulcer near the center of the cornea, but the left cornea was very slightly involved. The conjunctiva was affected in both eyes.

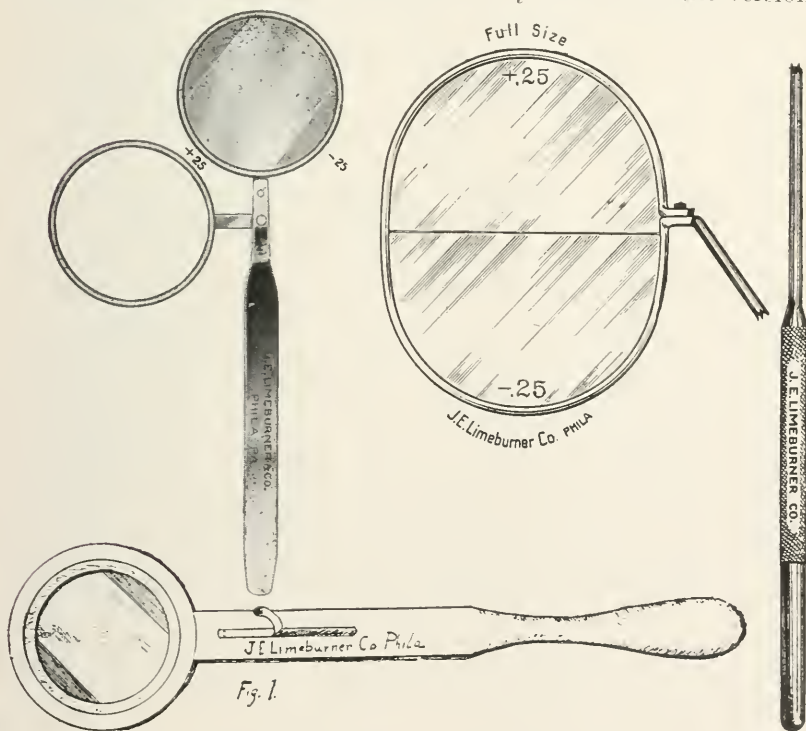
Prompt recovery took place in both cases, the treatment consisting in protection from light, and the use of simple vaseline in the eyes.

TWO NEW CROSS-CYLINDER HOLDERS.

BY J. N. RHODES, M. D., PHILADELPHIA, PA.

A Quadro-Circle Rotating Cross-Cylinder.

Partly in deference to my first ophthalmological teacher, Dr. Edward Jackson, and partly because I have been working at the problem for more than a dozen years, I offer the version



of the cross-cylinder as seen in Fig. 1., which I call the quadro-cirele rotating cross-cylinder.

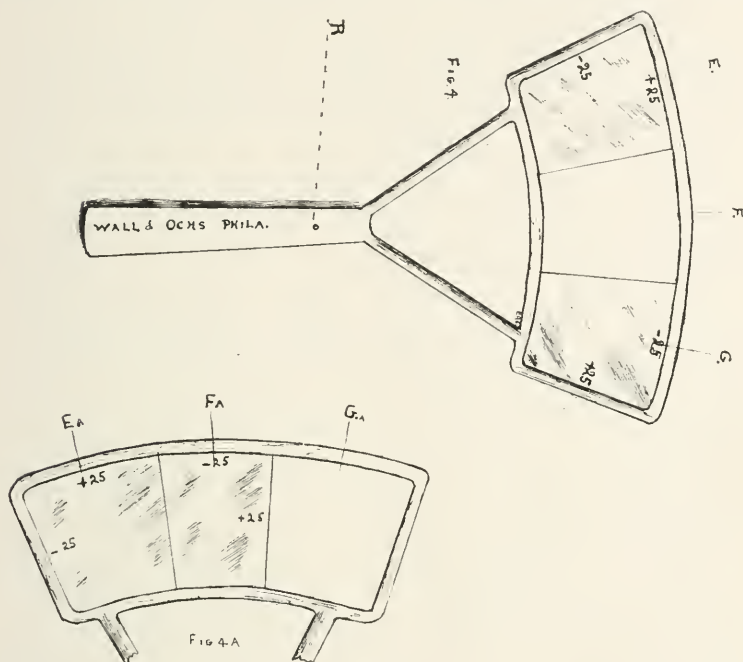
It was Doctor Jackson's habit to rotate his handle-less cross-cylinder ninety degrees in front of the patient's eye by a dextrous twist of the wrist. I never got very expert in the movement before some one came along with a cross-cylinder having a handle hung at forty-five degrees. It was only necessary, of course, to just turn this instrument over. I afterwards applied an empty ring to it, which will be seen in Fig. 2., and thought that I had a perfect instrument. An article on the subject was published in the *Record*, April, 1909.

The quadro-circle cross-cylinder is constructed by taking a spun-up cross-cylinder and placing it in a carrier, which has a groove and a small spiral spring attached to it and to the hidden end of the finger hook in the slot of the handle. When the lens is to be revolved this hook is to be pulled down by the finger or thumb for about an inch and a quarter, which is just enough to revolve the cross-cylinder ninety degrees. The cut will also show, that the handle is pitched at forty-five degrees, so that the instrument may be used by turning it over, as the old instrument was, or, it may be pumphandled around ninety degrees, as some do the old cross-cylinder. This instrument has also a folded empty ring, which of course, may be used or not as the operator wills.

I, myself, in using this instrument hold the plus axis on the line of the plus axis of the dark room found astigmatism, (if it is an hyperopic case and the reverse if it is myopic.) and say to the patient, "would you rather have this added glass the first way or the second way," having turned it ninety degrees. If the case is an hyperopic one of low degree and she replies, "first way," I add a sphero-cylinder trial lens an 0.12, stronger, and consequently, if she says "second way," I put in a trial lens on 0.12, weaker, and when she hesitates, I turn down the empty ring and say that there will be three changes this time, and then propound the queries, "first?" "second?" "or third?" If the patient says, "third is best, doctor," I deliberately take out the lens, place it in the tray and put its fellow back in the trial frame. I do not allow my patients to have any responsibility in the examination, or permit them to learn that they may keep or change a lens, or shorten the examination by their answers.

This instrument has shown me a new thing in cross-cylinder work. If this rotary cross-cylinder is slowly revolved in

front of patients, some will say that it was better just before you stopped turning, or that it was better just after you began to turn, or in some other position, the letters looked blacker. Does this mean that the assumed axis is wrong? I do not be-



lieve that it does. I think that it is a slight negligible irregular astigmatism which is benefited by the minus and plus combination just at that point, notwithstanding that it is not the combination which the patients needs, or the main axis on which the cylinder is to rest. If this thing should occur with a patient whose vision had not been made normal with the lens in front of her, I might agree that the determined axis was at fault, but when it occurs with a patient who is reading a line or two below normal, it seems to me to be more like a small corneal wave, as it were, which, as to vision, is unimportant.

Fan Shaped Double Opposed Cross-Cylinders with an Adjustable Empty Space.

In order that I might have an empty space with my double cross-cylinder, and, moreover, in order that the empty

space might be adjustable. I had Wall & Ochs make me the instrument as seen in cut No. 4.

Cut 3, shows my first double opposed cross-cylinder, which was described by me in the June edition of this Journal, 1911.

The new instrument, as may be seen, consists of two fan or keystone shaped cross-cylinders, with an empty space of the same size between them. (Fig. 4.) or beyond them, (Fig. 4a.). These lenses and empty space are designated by the letters E, F, G, in Fig. 4., and by Ea, Fa, Ga, in Fig. 4a.

The lens marked G, is movable. It may remain as it is making a test of less contrast, or it may be moved to Fa, making a test of double contrast. Sliding this lens varies the test at will.

There are several things which commend this instrument. One is its long handle which enables the operator to comfortably reach the patient, and if occasion require, to make an examination without the patient removing her hat. Another is the long curve of frame which allows the radial lenses to pass gently in front of the patient's eye without any movement of the operator's wrist.

My own method of handling this instrument is to seize it by the flat handle between my thumb and forefinger at the point designated by R., in the cut, and holding the bottom lens E, parallel in front of the eye, allow the instrument to slowly revolve by its own weight until the three tests have passed down.

Step and Half Step Testing.

This instrument makes what I call a step and a half step test. If, for instance, the empty space is in the middle as it is in Fig. 4., the use of the instrument makes only half the difference to the patient as it does when the empty space is at one end, as it is in Fig. 4a. To illustrate: If I take the instrument as shown in Fig. 4., and place the plus strength of the cross-cylinder, (marked G, in the cut) on the line of the astigmatism, and say to the patient, "would you rather have the first glass?" or moving to the empty ring, say, "second glass?" there would be only half the change as there would be if I took the double opposed cross-cylinder directly following each other (as seen in Fig. 4a.). In other words, a plus quarter on one side changed to a minus quarter on the other would obviously make the difference of a half diopetre, while

a plus or minus quarte reduced to nothing would only be half that amount. Hence, it must be understood, that by just moving the lens from center to end, or vice versa, makes of the operation a half or a whole step test.

Since having these four cross-cylinders it has been my habit to try them all. Many times when I thought that I had an eye corrected with one instrument it would waver or change with another, so that I now feel compelled to use them all on each case. I have found, too, that the use of the four different instruments to find the same thing breaks the monotony of the movements, consequently, the patient is less likely to anticipate the answer. I believe the instrument which measures the most accurately in astigmatism is the one that lies closest to the glass which is being proven, of course, such glass should be as near where it is to be worn as it is possible for it to be fixed.

I have offered these four instruments with some hesitancy, because it may be asked, "why multiply instruments?" My excuse and answer is that frequent any systematic changing the testing instruments avoids monotony, and prevents the patient anticipating the operator's movements. They also clinch accuracy. After an operation has conscientiously used these four cross-cylinders he ought to be ashamed to make an 0.12. error in any cylinder under one dioptré.

It used to be said that every expert refractor reached the same goal over a different route. It is now conceded that no refractor can accurately measure *any* eye without the use of a cross-cylinder.

Not only do I urge the use of these four instruments, but I also advocate the use of several different trial frames, (not necessarily of different makes), as a guard against their improper adjustment. To be sure, I am aware that accurate work can not be done with *any frame* which is not attached to the patient's head just as the glasses are to be worn, as with such a frame it matters not how the patient may twist or turn his head for the axis of astigmatism remains in line with the properly placed trial lens.

In conclusion, then, let me urge the use of many instruments; plenty of cross-cylinders; several duplicate trial frames; and many test cards. Let each case be guarded by check on check, with different instruments. After the use of four different cross-cylinders on the same case with identical results,

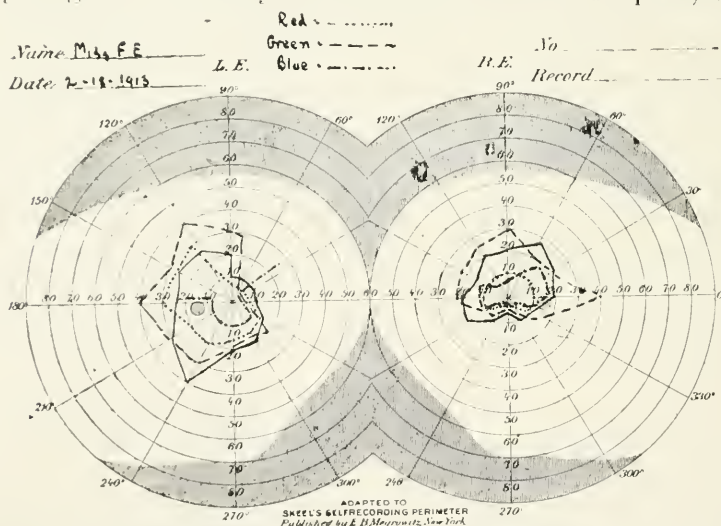
and, likewise, after the use of two or three trial frames and no deviation in the findings, an operator may proceed to write his prescription well knowing that it will be hazardous for anyone to change it for the next two or three years.

1833 Chestnut St., Philadelphia, Pa. J. N. RHOADS.

THE REPORT OF A CASE OF "OPTIC ATROPHY CAUSED BY UTERINE HEMORRHAGE."*

BY F. PHINIZY CALHOUN, A. B., M. D., ATLANTA, GEORGIA.

Disturbances of sight due to remote hemorrhage is of comparatively rare occurrence. Singer, in 1901, had collected but 198 cases, and recently Zentmayer has added 24 cases from the literature up to the present time. Dufur found this condition but once in 30,000 cases. The collection of cases by Singer and Zentmayer is most exhaustive and complete, and



the statistics and the factors here mentioned, which are found associated with this disease, are taken from their monographs.

It appears from the investigation that the ocular symptoms are so varied that the same pathological condition does not exist in all cases, and that the mere loss of blood is not the sole factor. We occasionally learn of some case, where by accident or operation, a great quantity of blood has been lost; recovery takes place and vision is in no sense impaired. On the other hand, we have here a patient who has visual

*Read before Georgia State Medical Association, April 17, 1913

disturbances from a severe uterine hemorrhage, and it would not be proper to believe that she is a healthy individual. We must assume, in the absence of anything more definite that there exists some blood dyscrasia, or a toxemia, causing the hemorrhage.

The majority of cases of visual disturbances due to distant hemorrhage occur during middle life and women are more frequently affected than men. The visual disturbance may follow a few hours after the hemorrhage, and in some cases it has gradually failed, reaching its lowest weeks later.

Vision is affected from a slight impairment to total blindness, and both eyes are usually involved in about 88 per cent.

The ophthalmoscopic picture is usually a neuritis or an optic atrophy. Retinal edema and hemorrhage and even negative changes have been recorded.

No characteristic change occurs in the field of vision. Central scotomata in 13 per cent, and even hemianopsia in 10 per cent were mentioned in Zentmayer's collection.

The source of the hemorrhage is varied but fully 70 per cent was from bleeding of the uterus and gastro-intestinal tract. Hemorrhage from the extraction of teeth, epistaxis, venesection and hemoptysis and wounds are the less frequent sources.

As to the prognosis, I quote verbatim from Zentmayer: "The cases in which visual disturbance was coincident with the hemorrhage, improvement occurred in 22 per cent; of those in which it occurred, within the first twelve hours, improvement was 71 per cent.; between twelve hours and ten days, 41 5/10 per cent and after ten days 50 per cent—apparently these cases with a central scotoma gave the best prognosis."

The pathological changes which take place in the eye causing the visual disturbance, appears to be a degeneration of the ganglion cells, due to an interference with their nutrition—an ischæmia. Holden has virtually proven this by his animal experimentation.

As to treatment, it should be borne in mind that visual disturbances might follow any severe hemorrhage, either from wounds or disease, and prophylaxis by hypodermoclysis, infusion or transfusion, would act as a two fold remedy. Iron and strychnine tonics would serve best in the after treatment.

The history of a case which has recently come under my care is as follows:

Miss F. E., age 38, relates that the immediate family history is negative to tuberculosis or cancer, except that there is a reported case of carcinoma of the breast of the grandmother, on the mother's side.

The past history is that she had the usual diseases of childhood, and that her menstrual flow commenced at about 13 years and has always been scanty, with more or less pain. About four years ago, she suffered from a nervous breakdown while in the photography business, and was unable to do her work or take any exercise, such as walking without great distress. She fully recovered from this and has been engaged in missionary work since.

Her present illness dates from September 15th, 1912, when after a week of normal menstruation, large clots of blood were passed, which later developed into a profuse hemorrhage, lasting a week, which persisted in spite of all treatment. On the 22nd, a violent hemorrhage occurred from which she collapsed, becoming unconscious and came very near dying. The hemorrhage ceased, but she was quite ill for a week, having nausea, hiccup and temperature as high as 102. Ten days later, when she had recovered, sufficiently to sit up, she first noticed that she was totally blind, being unable to detect the light in the room.

The patient states that she might have lost her sight soon after the occurrence of the hemorrhage but on account of great physical weakness and the dark room with absolute quiet, she did not detect it until her partial recovery. This period of absolute blindness lasted for three weeks, when slowly sight was partially restored.

The treatment given to check the severe hemorrhage was vaginal tampons, ergot, and iron, stypticin, chloro-calcium, and later iron and strychnine.

I saw the patient January 10th, 1913, she was then anæmic, weighing 110 pounds and looked delicate. Vision
 $R = 20/100$ atropine $+2.75 = +1.50 \times 90 = 20/50$
 $L = 15/200$ unimproved.

Pupils normal and reacted to light and convergence, media clear, and both discs very pale, with retinal anæmia, and vessels much contracted. The attached field taken with difficulty shows a partial hemianopsia.

The patient was seen by my colleague Dr. J. Edgar Paullin, who had her in a sanitarium for several days for observation and examination and his interesting report is as follows:

(See Dr. Paullin's Report attached.)

In discussing the case with Dr. Paullin, it was his opinion that the patient was suffering from a severe intestinal putrefaction, and the general glandular enlargement was the result of this intoxication, a condition not at all uncommon.

HETEROCHROMIA IRIDIUM.

BY CARL WILLIAMS, M. D., PHILADELPHIA, PA.

J. C., age 19, a lime burner by occupation, presented himself at the University Dispensary in February, complaining of the disfigurement caused by a white growth in the pupil of the left eye. He stated that he had never been ill in his life. His father and mother are living and well, and have never suffered from any ocular trouble. Both are dark and have dark eyes. The patient has never had useful vision in the left eye, which has squinted since childhood. The iris of each eye was brown until about the age of fifteen, when that of the left eye gradually changed to blue-gray. He first noticed the change in the color of the left pupil about three months ago. Since then the black pupil has gradually changed until now he is disturbed by the disfigurement. He has at no time been conscious of any pain or discomfort, nor has he noticed any redness or other symptoms of inflammation. The patient is a healthy, well built man.

An examination of his right eye finds a pupil of $2\frac{1}{2}$ mm., reacting normally to light and accommodation. The iris is brown in color, the eyeground is healthy. Refraction is about 1 D. of hyperopia. The vision = $\frac{6}{5}$. The left eye has a divergent strabismus of 30° . The pupil measures 3 mm., and the iris does not react to light. The iris is light blue in color. In the pupillary area is a grayish white mass—the carataractous lens. Upon its anterior surface are several pigment dots. There are no such dots on Descemet's membrane. The tension is normal. There is no light preception. There is no conjunctival or ciliary injection.

This is, of course, another case of that peculiar condition,

Heterochromia Iridium, or as Butler calls it, Heterochromic Cyclitis, of which considerable notice has been taken during the last several years by some English and German writers.

Hutchinson (2) in 1869, first observed the dissimilarity in color of the irides, associated with cataracts or other ocular abnormalities in the lighter colored eye, reporting three cases. Nothing more was written of the condition until some years later, when Sym (3) and Gunn (4), published other cases, making observations as to the presence of cataract, chorioiditis, vitreous opacities, and even glaucoma. A number of cases were reported before Fuchs (5) published his paper in 1906. In 1910 Lutz (6) wrote a most complete account of the disease, reporting in all some forty cases. The next year Butler, reporting a case, gave a most complete resumé of the literature on the subject. He divides heterochromia iridium into two forms, one in which the condition is merely an anomalously followed by no inflammatory sequelæ, the other in which there are definite symptoms of ocular degeneration. Butler also says that in most cases the heterochromy was noticed at birth. Galezowski (7), however, says the condition is usually an acquired one, and that the depigmentation becomes manifest in early adult life.

While the cause of the disease is still unknown, it is often found associated with paralysis of the sympathetic. Mayou (8) in 1910 reported two cases in children, in the birth of whom instruments had been used, in which paralysis of one sympathetic was associated with a difference in the color of the irides. Albuminuria has been frequently found in patients suffering from this disease. Lutz found it in six out of fifteen cases.

In the congenital form of this disease, one parent being dark, the other light, the iris of one eye corresponds in color to that of one parent, the other to that of the other. In only one case, that of Gunn, was it observed that either parent had suffered from the same disease.

In the acquired heterochromy, the discoloration of the iris

-
- (1) Butler. *Ophthalmoscope* 1911.
 - (2) Hutchinson. *Royal London Ophth. Reports*, 1869.
 - (3) Sym. *Ophthalmic Review*, 1889.
 - (4) Gunn. *Ophthalmic Review*, 1889.
 - (5) Fuchs. *Klin. Monatsabl. f. Augenhk.* 1906.
 - (6) Lutz. *Zeitschrift für Augenhk.* Bd. XIX.
 - (7) Galezowski. *Recueil d'ophtal.* 1910.
 - (8) Mayou. *Trans. Ophth. Soc. U. K.* Vol. XXX.

may precede any manifestation of other ocular abnormality by several years, though Galezowski believes the depigmentation is always preceded by a chronic inflammatory condition with little or no manifestations. The first symptom noticed by the patient is nearly always a blurring of the lighter colored eye, which is sometimes associated with a slight ciliary flush. This is usually lenticular, though it may be due to vitreous opacities or deposits upon Descemet's membrane. Chorioiditis and optic neuritis may occasionally occur. The lens becomes cataractous in nearly all cases. In thirty-eight cases reported by Fuchs in 1906, thirty-three had a cataractous lens, and twenty-nine showed precipitates upon Descemet's membrane. Glaucoma occurred in several cases.

Operation for the removal of cataract in heterochromia iridium is generally looked upon with disfavor, though Galezowski, Butler, and others do not find the condition a bar to operation, nor do they believe the prognosis unfavorable.

The following was written by a patient whose eye was lost following cataract extraction and was enucleated:

"Good-Bye, Old Eye, it is hard to part
 Since we've been together from the start.
 We've traveled many a mile together,
 Through rains and sleet and all kinds of weather.
 We've traveled the oceans from shore to shore—
 We've viewed many beautiful landscapes o'er.
 But say, poor eye, please do not cry
 Because they'll cast thee out to die.
 Thou wilt leave with me thine only brother
 To guide my footsteps a little farther.

Good-Bye."

A new eye journal is to be published in Berlin to be known as "*Zeitschrift für Ophthalmologische Optik mit Einschluss der Instrumentenkunde*." The editors are Prof. Greef and Dr. Oppenheimer of Berlin and Dr. V. Rohr, Jena. J. Springer is the publisher. Among the names upon the staff of the new journal are Axenfeld, Landolt, Hess, Bielschowsky, Dimmer, Stock, Wessely, Gullstrand, Hertel and V. Pflugh. The subscription price per year is M. 12.

REPORTS OF SOCIETIES.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

SIR ANDERSON CRITCHETT, BART, C. V. O., IN THE CHAIR.

CLINICAL MEETING, WEDNESDAY, MAY 7, 1913.

Mr. N. Bishop Harman showed a case of exenteration of the orbit with partial excision of the maxilla and ethmoid for rodent ulcer. The woman had first seen the rodent ulcer 17 years ago, and she treated it herself with caustics. It frequently recurred, and nine years later was as large as a farthing. She then had X-rays at every recurrence for four years. Next zinc ions were used, followed by radium for nine months. When sent to him for operation, the ulcer was as large as a penny, and was fixed to the bone. Ultimately, an extensive operation had to be performed, and the growth was found to have extended into the orbit and the bony walls. Mr. Harman said none of the newer measures for the treatment of rodent ulcer could compare with the knife for certainty and security, and the knife was infinitely less costly than any other method. Had this growth been excised in the first instance, the woman would have escaped the necessity for this severe operation, and would have preserved to herself two sound eyes.

Mr. Harman also showed drawings of a case of extreme hyperphoria, for which he had operated by his new method of sub-conjunctival reefing. The patient, a woman aet. 28, had been a martyr to severe headaches since school days, and could obtain no relief from them. Examination of the eyes revealed hyperphoria or latent vertical squint, requiring a 15° prism to correct. It was impracticable to wear such a high degree prism. Concluding from other signs in the case that the left superior rectus was at fault, he operated, shortening that tendon by his new method. She had now orthophoria to every test, and the headaches had completely ceased. Seven months had elapsed since the operation, and the result was perfect in every way.

Mr. Edgar Chatterton showed a case of tubercular iritis in both eyes. The boy noticed that his sight was bad when at school 13 months ago. He had never had pain, and there was no history of tubercle or syphilis. Two months ago he had yellow vascular nodules in both irides at the angle of the

anterior chamber, posterior synechiae, keratitis punctata, and vitreous opacities. He was now having tuberculin injections one 1,000th of a mg. once a week, and frequent tapplings of the aqueous. The condition had improved on that treatment.

Mr. Sydney Stephenson showed a case of ocular torticollis in a boy aet. 13½. At three months of age, when recovering from whooping cough, he held his head towards the left shoulder, and that habit had persisted. While he was in the wry-nek posture there was no squint or diplopia. But when he straightened his head his right eye turned upwards and outwards, and vertical contortional diplopia developed.

Mr. G. H. Pooley and Mr. Harold Grimsdale showed cases of angioma of retina, and Mr. Pooley also exhibited a case of giant-celled sarcoma, in which there had been several operations for recurrences, the last in November, 1911, since which date there had been no further appearance of the disease. The President commented on the present procedures as a great advance of the days of removal followed by the application of caustic zinc paste to the remaining surface of the wound.

Mr. H. Herbert showed a case of third nerve paralysis with rhythmic clonic spasm. In this case no divergence was to be seen, but there was the same absence of strabismus as in congenital paralysis of the sixth nerve. The synchronous raising of the lid to the normal extent was due to spasm of the unstriped levator muscle, which was innervated by the sympathetic.

Mr. H. J. Fisher exhibited a case showing arteriovenous communication in the cavernous sinus, successfully treated by ligation of the common carotid. Mr. Elmore Brewerton, discussing the case, pointed out the reason why the internal carotid should be tied in preference to the common carotid, and said he thought that measure would be followed by more cures, and less cerebral complications.

Mr. Ernest Clarke presented a case showing an unusual arrangement of opaque nerve fibres. The patient was a myopic youth aet. 20. There was a peculiar ring around the disc, bulging forward, giving to the disc a crater-like appearance. Opaque nerve fibres spread from all parts, and partly involved the macula.

Mr. R. Cruise showed three instances of trephining combined with insertion of thread in glaucoma, the object of this

being to increase the area after trephining. The aqueous filtered along the course of thread, and did not cause inconvenience. He explained that the procedure was on its trial. The president said one of the cases shown he sent to Mr. Cruise for treatment, expecting that enucleation would have to be performed, but from T + 3 the tension was now found to be normal or even sub-normal, and the pain had gone.

Mr. Richardson Cross (Bristol) showed a pigmented growth of the conjunctiva. The general impression was that free excision followed by the galvano-cautery to the residue should be done.

THE AMERICAN OPHTHALMOLOGICAL SOCIETY.

REPORT OF MEETING HELD MAY 6 AND 7, 1913. (CONCLUDED).

best method and have had a number of cases where it has been satisfactory. On the other hand, to get a ragged piece undoubtedly one should go in through the sclera. I had quite recently a most satisfactory case of that character. That simply means, therefore, that the observation made by the x-ray is an important guide as to the method we should follow in these cases.

Dr. S. C. Maxson, Utica, N. Y.: When a foreign body has been drawn into the anterior chamber, if you attempt that route, and by accident you foul the iris, you must be exceedingly careful after you have made your incision not to apply the magnet again. The chance is that if you do you will pull the iris out with the foreign body. I would have had this accident had it not been for a remark made to me by a member of this Society a number of years ago when the subject was discussed. He spoke of what to do next if you had the misfortune to draw the iris out. Soon after this I did the operation and it fouled the iris and I remembered what the man said. I made the incision with a keratome and slipped the foreign body out and made an iridectomy and have an almost perfect result. I would call attention to the danger of applying a big magnet. I have a little magnet and instead of carrying under by arm I suspend it by a pulley where I can elevate to my liking.

Dr. Peter A. Callan, New York: Every case must be handled individually according to the circumstances, point of entrance, size, location and length of time, everything must be

taken into consideration. Ever since Haab has shown the method of bringing the body around into the anterior chamber I have followed that method, except in a very few instances and I think I have been successful. When you get the object into the anterior chamber, stop the use of the big magnet and with the small magnet bring the body around on the iris directly under the point you want to make the corneal incision. Make the corneal incision and apply to that opening the small magnet and it jumps out without bringing the iris into the wound. I don't mean to say we should not go by the scleral route. Let each man decide for himself what he is best adapted for.

Dr. H. G. Sherman, Cleveland, O.: I hope that someone will be able to elucidate a few points which are very obscure to me. Before I modified this very large magnet I made a series of experiments placing foreign bodies in pigs' eyes and using the magnet at various distances. In every instance in which I have attempted the use of the powerful magnet I first saw the iris bulge or the lens torn into the anterior chamber. I saw the suspensory ligament damaged and it caused a cold chill to go up my back and I stopped the use of the magnet in that form. I do not see why any man can draw it so beautifully and gradually and pass it along just as you would guide a little lamb by a string. Any magnetic line of force goes along the line of least resistance straight and like a dash. The impaction is something terrific.

The Experimental Production of Sclero-keratitis and Chronic Intra Ocular Tuberculosis. (With Lantern Demonstration.)

This paper was presented by Dr. F. H. Verhoeff of Boston.

When dead tubercle bacilli are injected into the vitreous humor, or anterior chamber, of a rabbit they produce, after about three months, lesions in the corneo-sclera closely analogous to those of tuberculous sclero-keratitis in man. Smaller tubercles are produced on and within the iris and still smaller ones on and within the ciliary processes. The latter are of special significance as they indicate that the foci in human cases of tuberculous cyclitis are not necessarily due to direct metastases from the blood. Tubercles of the choroid are also produced, due to bacilli passing from the filtration angle along the post-chorioidal space.

These observations confirm the theory previously advanced

that tuberculous scleritis and keratitis are due to infection from the aqueous humors through the filtration angle. They also strongly suggest that the chronic types of tuberculous iritis and cyclitis, and possibly chorioditis, are likewise due to metastases from the aqueous humor, the bacilli reaching the latter from the vessels of the ciliary body. The lack of immune substances in the aqueous humor no doubt increases the chances for such metastases to occur. In addition, these observations suggest certain procedures in regard to treatment.

On Some Forms of Retinal Tuberculosis.

This paper was read by Dr. Arnold Knapp of New York.

Apart from the periphlebitic processes in the retina of adolescents and the cases of deep retinal exudation, there are form of retinal tuberculosis which seem to involve the superficial or internal layers of the retina. Of this latter variety I report two cases. The first was in a boy of 19 years, who consulted me because the sight of the right eye had been blurred for several days. The sight of the right eye was 5/200. There was a central scotoma. The sight of the right eye was normal. In the left eye the optic disk was swollen and inflamed and surmounted by a small hemorrhage. The macular region was occupied by a perfect star-like figure the radiations of which were composed of glistening, silvery, interrupted lines. The diagnostic injection gave a positive reaction. Two days later many small round white areas were seen about the disk and the large retinal focus. Tuberculin treatment with the bacillary emulsion was instituted and about six weeks later the main focus was nearly gone and a distinct connective tissue formation was taking place. The macular figure was reduced to a few radiating lines in irregular areas. Three months later nothing remained in the macular region except some shining dots and superficial pigment. The vision had improved to 15/200 but there was still a central scotoma. The rapid and continuous improvement under tuberculin treatment confirmed the diagnosis of a tubercular lesion. The second case was a patient 22 years old, who was seen because of failing sight in the right eye of one week's duration. Vision in this eye was 8/200 with a central scotoma; that of the left eye normal. There was in the right eye a white exudate composed of rounded areas along the course of a macular vein. A positive reaction to tuberculin was obtained. Tuberculin treatment was

instituted. But in spite of this the lesions extended along the course of the blood vessels for a time, but later absorption and transformation of connective tissue progressed slowly and four months later only two exudates were visible and these reduced one-half in size. The vision has increased to 18/200, the central scotoma persisting. Considering the extent and severity of the process in these cases the outcome must be regarded as very favorable, for which result the tuberculin treatment was probably in great part responsible.

These two papers were discussed jointly.

DISCUSSION. Dr. Haskett Derby, Boston: Dr. Verhoeff's experiments suggested the possible benefit of puncture of the anterior chamber in cases of tuberculosis of the anterior segment of the eye. I have done this a number of times. On one case with beginning infiltration in the cornea following a very marked scleritis I have done the puncture 4 times and apparently the process has been entirely arrested. I have done it twice on another case and on one or two others and it certainly seems as if it were a procedure of value. There has never been any severe reaction from it and the next day the eye is no more inflamed than before the puncture was done and very often it has been less inflamed.

Two Unusual Orbital Conditions.

Dr. William Campbell Posey, Philadelphia, read this paper.

Case I. Chronic inflammatory tumor, with cyst and giant-cell formation, in the floor of the orbit and connected with the lacrimal sac, arising after false passages of lacrimal probes. As the mass threatened the integrity of the globe from pressure, it was removed under ether. Macroscopically: Cystic without capsule or definite limitations from the surrounding tissues. Histologically: A fibrotic stroma with occasional small collections of lymphocytes, numerous small cysts, and foreign-body giant-cells. The pathologists were of the opinion that the mass should be regarded as the reaction of the tissue in the injured area to some form of foreign-body irritation.

Case II. Large lacrimal mucocele, occasionally by pressure exerted externally by the distended walls of the anterior ethmoidal cells, in consequence of the retention of mucus within those cavities. Extirpation of the sac was followed a

year later by another swelling. The orbital tissues were incised, and a large mucocele found projecting from the inner orbital wall. The ethmoidal cells were opened and free drainage established into the nose by a rubber tube. The case exemplified the condition designated by Peters in 1902 as pre-lacrimal tumor, the ectasia of the sac being occasioned by a stoppage of its orifices by pressure exerted externally from the inflammatory products or by the walls of neighboring sinuses.

Report of a Case of Cavernous Sinus Thrombosis Resulting from Small Abscess in the Skin of Temple. Vaccine Treatment.

This paper was read by Dr. Albert C. Snell, Rochester, N. Y.

The patient was an otherwise strong, healthy man of 24 years. For a day before his first visit the vision of the right eye had been rapidly growing dim and there was swelling of the lids. There was found to be edema of the conjunctiva, exophthalmos, steamy cornea, slightly reacting pupils, and but little mobility of the eyeball. There was edema of the disc and tortuous veins. There was rapid pulse and low fever. There was a small crusted area on the right temple. The patient stated that there had been a pimple here and that he had pinched it a few days before. The condition was considered orbital cellulitis. On the fourth day the condition had grown much worse. The lesion on the temple was then explored and the orbital cavity punctured. By the 7th day the condition of the patient was critical and antistreptococcic serum was given. By the 17th day the patient had so far improved as to be almost normal and recovery seemed assured. On the 21st day the patient's condition became very serious and on the next day death took place.

DISCUSSION: Dr. Emil Gruening, New York: Infective thrombosis of the sinuses is quite prominent in otological practice, but the otologists do not use serum. They remove the clot and they generally succeed in saving the patient. At the meeting of the International Otological Society last year Mr. Ballance, of London, read a paper on the operation of removing clots from the cavernous sinus. I think it would be of the greatest importance for ophthalmologists to study the matter of reaching the cavernous sinus and getting directly after the thrombus of the cavernous sinus.

Dr. F. H. Verhoeff, Boston: A year ago I performed an

autopsy on a case that was an example of what such cases can be. It was a man who had a small furuncle inside of his nose and in a few days this extended up on the outside of his nose along the subcutaneous tissues into the orbit and produced a cellulitis and in 3 or 4 days he was dead. At autopsy he showed this cellulitis and thrombosis of the cavernous sinus and a meningitis. I thought the meningitis was due to extension from the lacerated tissues then to the cavernous sinus. The organism here was the very common *staphylococcus aureus*.

Sarcoma of the Choroid, Not Demonstrable by the Ordinary Transilluminator.

Dr. Allen Greenwood, Boston, read this paper.

The patient was a young woman, with an acute fulminating glaucoma, which had been treated for 10 days by atropin ordered by her family physician. When first examined by the writer there was absolute glaucoma, no view of fundus, and only a slight light reflex. Absolutely no vision, so that the visual field could not be mapped out. No sign of trouble in the other eye. Suspecting a possible sarcoma, the transilluminator was used, without demonstrating any tumor. An iridectomy was performed, and a week later the media had cleared sufficiently to give a view of the fundus. The optic disk could not be seen, as it was covered by a detachment of the retina. The eye was removed and showed a sarcoma close to and covering the optic nerve. This could be demonstrated by placing the transilluminator as close as possible to the exit of the optic nerve.

Epibulbar Carcinoma, with Histological Examination of the Specimen.

This paper was presented by Dr. G. E. de Schweinitz, of Philadelphia, and Dr. E. A. Shumway, Philadelphia.

The case which we report was in a man aged 34, having a very large funguslike, epibulbar growth which had begun about 14 years previously as a yellowish-white papule at the inner corneal margin of the left eye. During the last five years the growth covered the whole front of the eye and protruded between the lid. The eyeball was enucleated about 6 months ago at which time exploration of the orbit failed to reveal any suspicious tissue. About 3 months later the patient

returned with a recurrence of the growth at which time a complete exenteration of the orbit was performed and up to the present time there is no sign of recurrence. Microscopic examination of the growth shows it to be primary carcinoma of the conjunctiva. There was no perforation of the bulbus.

DISCUSSION. Dr. Emil Gruening, New York: As I look back on my own experience in regard to epibulbar growths, I think they are to be dreaded. They all have recurrences. I think it is a mistake to eviscerate at once. All the cases of epibulbar growth which I have had and could follow died, sarcomas and carcinomas both.

Dr. G. E. de Schweinitz, Philadelphia: I think, with Dr. Gruening, that in most instances it is proper to enucleate—in this instance to eviscerate. I recall, however, a patient who came to me 15 years ago in Philadelphia. She is perfectly healthy at the present time, but she probably would not have been a very loyal patient had I removed the eyeball on that occasion. On the other hand, Dr. Sweet and I had a case which died promptly. It is safer in most instances to take the eyeball out, as Dr. Gruening says.

Toxic Amblyopia Due to Tobacco Alone.

Dr. Matthias Lanekton Foster, New Rochelle, N. Y., read this paper.

Adam says, in his *Ophthalmologische Diagnostik*, published in 1912, that it is doubtful if tobacco alone is competent to induce toxic amblyopia. To prove this competency on the part of tobacco a case of toxic amblyopia is reported, met with in a man 65 years old, who had been a total abstainer from intoxicating liquors for 40 years, who presented no symptoms of multiple sclerosis, or of any other organic disease of the central nervous system, and no signs of any form of poisoning except by tobacco, but had been an inveterate smoker for many years. The treatment consisted in total abstinence from tobacco with strychnine hypodermically, and by mouth over a period of 11 months at which time the vision was normal under proper correction, the final vision being 20/10—in one eye, with no central scotoma for red, and 20/15—in the other, with a minute central scotoma for red.

DISCUSSION. Dr. Emil Gruening, New York: This is new to me. I have never seen a case of tobacco amblyopia. All the amblyopias that I see that concern the macula-papillary are cases in which the subjects both smoked and drank to ex-

cess. I think that Milliken, of Constantinople, many years ago stated that Mohammedans who smoked excessively, but did not drink, never have tobacco amblyopia. My Cuban friends also tell me that among the Cubans who smoke a very strong tobacco which contains much nicotine this form of amblyopia is also unknown. This is in the line of my own observation. I could always confess that they did drink.

Dr. G. E. de Schweinitz, Philadelphia: There are cases on record in which it was believed that tobacco was the sole cause of toxic amblyopia. It is extremely difficult from a history of a patient to determine as to the patient's consumption of drugs and difficult to decide as to the patient's veracity. The interesting fact remains of a number of cases of tobacco amblyopia of women working in factories and in whom the amblyopia disappeared when a change of occupation was secured. Nevertheless, it is extremely difficult in the vast majority of cases to determine whether or not alcohol has been used. There is another thing to be taken into consideration. From the experimental standpoint it has been difficult to work with tobacco. There exists in certain horses in Australia a well known form of amblyopia. This depends, in all probability, upon the eating of the wild tobacco, which grows there, by these horses.

A Case of Paralysis of Divergence.

This paper was read by Dr. William Zentmayer, Philadelphia.

The patient, a male, aged 33 years, was a barber. Diplopia came on suddenly about 1 year ago and has persisted. Troublesome for near work only. Characteristic diplopia. He was enabled to do his work, however, by combining with the correcting lenses for a low compound hyperopic astigmatism, 8° prisms base out before each eye. Fundus and field were normal. There was a positive Wassermann and neurological examination revealed symptoms suggestive of a lesion in the left hemisphere. Under mercurials and potassium iodide the general condition improved, but no change in the ocular phenomena developed.

The Eye Examination A Help to Diagnosis of Commencing Arterio-Sclerosis.

Dr. Edward R. Williams, Boston, read this paper.

The object of this paper is to show how eye examinations

may help diagnose commencing arterio-sclerosis. In a series of 40 cases the diagnosis was made according to the classification of Alleman. In addition, all were divided into three groups: (1) Where diagnosis of arterio-sclerosis was made and the patient died from a cerebral hemorrhage—9 cases. (2) Typical cases where a definite early diagnosis was made and later confirmed by repeated examinations—17 cases. (3) Suggestive cases, in which of 10 only 1 examination has been made or other data are lacking—14 cases.

Diagnosis may be either premonitory or confirmatory. The premonitory diagnosis has been always confirmed by subsequent fundus examinations, estimation of blood pressure, and general physical examination. The confirmatory diagnosis includes those suffering from chronic nephritis who seek relief for failing vision. The diagnosis of commencing arterio-sclerosis is made if the following signs are more or less definitely seen in the fundus: (1) Tortuous terminal arteries, especially the arterial twigs close to the macula. (2) Depression of veins by sclerosed arteries, most easily seen close to the disk where the vessels are large. Comparing the crossing of sclerosed and normal arteries, it is often easy to see that the vein beneath the hardened artery is on a different level. There is often a slight bulging of the distal end of the vein. (3) The typical "silver-wire artery" was rarely seen among these patients. (4) Hyperemia or "brick-red" color of disk, often with more or less blur of its edge. In addition to these fundus changes there was noted a disturbance of the muscular balance in 9 cases, 34 per cent. of the patients in the first two groups. Heterophoria seems to be a functional disturbance, attributable to arterio-sclerosis, which has not been mentioned by other observers. Prognosis as to vision: In the first group of fatal cases, one-third became partially blind, the remainder had good vision till the end. Among the patients of the second group the variation of vision has been insignificant. As would be expected, practically all patients in the third group have normal vision.

DISCUSSION. Dr. W. F. Mittendorf, New York: I have listened to the paper with a great deal of interest. It brings cases which come early with degenerative changes which require the assistance not only of the ophthalmologist, but of the physician. As Dr. Williams pointed out a great many of

these cases are not aware of the marked decrease of vision and would go on in the ordinary routine of life until some serious change would take place. I have seen a great many of these cases and I have taken a great deal of interest to have the arterial pressure measured in these cases. One of the first indications of these cases is to try to reduce arterial pressure. I would like to mention here that one of the greatest remedies in my experience has been the Russian oil of spermaceti. Taking a tablespoonful 3 times a day will reduce pressure from 235 to 175 or 185. Of course the great remedy in these cases is outdoor life. If you can get these patients to give up their business occupation, to go out and play golf, to row, or anything of that kind you will benefit them materially, especially in the group of cases where the depression of the veins by the arteries is very marked.

Dr. Allen Greenwood, Boston: One of the important symptoms is the fact that a slight disturbance in central vision is often the first symptom. The patient would complain in reading your test type line that the central letter is raised a little above the other I think that is quite common in these cases of arterio-sclerosis.

A Case of Thrombosis of the Retinal Vein, with Remarks.

Dr. J. Herbert Claiborne, New York, read this paper.

The case described was in a maiden lady aged 44, in excellent general health, who consulted me because of a big "block" of smoke which appeared suddenly before the left eye after rising in the morning and which gradually grew less marked as the day advanced. The left optic disk was very red, the veins enlarged, small hemorrhages between the disk and the macula. Next day the hemorrhages were more marked and the veins were larger; the vision was blurred and there was a small scotoma. The urine was negative; blood pressure 124; Wassermann negative. A month later the condition appeared like choked disk. The patient was given potassium iodide in small doses and three months later had greatly improved. I believe that thrombosis of a vein presupposes a solution in the continuity of the intima thus affording a basis for the thrombus, and I infer that such was the condition in my case. This case seems to me to be unique on account of the good general health of the subject.

DISCUSSION. Dr. Allen Greenwood, Boston: I think

that a certain number of these cases of venous thrombosis are afterward, from a few months to a year and a half, apt to develop a posterior glaucoma, uninfluenced by eserine or pilocarpin, which requires iridectomy for cure. I have had 3 cases in my practice of glaucoma following thrombosis of the central vein. The eye must then be removed as the ordinary treatment of glaucoma is unavailing.

Teaching Physiological Optics.

Dr. Walter B. Lancaster, Boston, read this paper.

Physiological optics is the most important subject the student of ophthalmology has to study, judged either by the amount of time he will spend in his private practice in work which is concerned with some part of that large field, or judged by the fact that it is physiological optics which is the distinguishing and characteristic feature of our special field—that part which is not found in any other branch of medicine and therefore will not be taught elsewhere, as are pathology, anatomy, general physiology, etc., which are taught to all medical students.

At present no provision that I know of is made in this country for teaching that subject in the only way it can be adequately taught, viz., by a course of several hundred hours, largely laboratory work.

DISCUSSION. Dr. Edward Jackson, Denver: In the University of Colorado for 2 years I have done what has seemed to me the most important work I could do for graduates in general medicine. For 2 years the class is divided into sections for demonstration work and the demonstration work in ophthalmology has occupied 16 hours. I take two sections of 16 men each and see what this optical apparatus did to a pencil of rays and then let them use each other's eyes for practising, particularly with the ophthalmoscope. After explaining the method and standing over the men while they attempt to practice it, each student using another student's eyes to practice on. At first I have them look in without any mydriatic. Several get good views at the first lesson. At the next lesson I put a drop of cocaine into each eye and thus the pupil is sufficiently dilated to make a very favorable opportunity for use of the ophthalmoscope.

Dr. B. Alexander Randall, Philadelphia: I agree with what Dr. Jackson has said. I would like to say that such in-

struction has been given in the University of Pennsylvania for a long while. In 1884, Harrison Allen asked me to take the laboratory of physiology for the autumn and give the course in physiological optics. In later years under de Schweinitz the teaching has been developed to a very notable extent. It is not, in our course, practical to give to physiological optics several hundred hours, but many hours are given to it. The artificial eye is used, the methods of refraction are taught and a great deal more in that institution, at least, is put forth than in Dr. Lancaster's paper.

A Word More on Test-Cards and Type.

Dr. B. Alexander Randall, Philadelphia, read this paper.

The published cards are perhaps improving; yet flagrant offenses against the principles of their construction show that many are merely empirically based on Snellen's data, still less on the principle given us by Hooke and Helmholtz. Especially is this true of school-charts for illiterates. The difference between Paris feet and our English standards is ignored; the calculations, if made, are generally faulty, following Snellen in using the tangent of the angle of 5' instead of twice the tangent of half the angle; and the standard is stated to be constituted by strokes instead of interspaces subtending an angle of 1'. They are printed on glaring white cards, giving the utmost confusion by irradiation, when the execution is otherwise fair.

The following cases and instruments were exhibited.

Two Cases of Binocular Coloboma of the Optic Nerve in the Same Family.

Dr. George S. Crampton, Philadelphia, presented two patients with the following histories:

Case I. Man aged 20, with large coloboma of nerve entrance of right eye, surrounded, except on temporal side, by a coloboma of the choroid. The almost round scleral opening $2\frac{1}{2}$ times the diameter of the normal disc, is sharply undercut, and the vessels, faintly seen in the center of the deep cavity, appear again about the edges of the pseudo disc and pass out to the normally appearing retina. Refraction of fundus —6.00 D., of bottom of cup —18.00 D. He has poor perception of light only.

Left eye is slightly myopic with corrected vision of 6/6. The scleral opening is transversely oval and somewhat larger

than a normal disc. No coloboma of choroid. Cup undermined laterally but not so deep as in right eye.

Case II. Sister, aged 5 years. Right eye blind, left 6/12. Lateral nystagmus. Condition somewhat similar to the above, but no coloboma of choroid touching disc. Both scleral openings are round and sharply cut, with vessels distributed about the rim. Nystagmus prevented measuring depth of cavities. In right eye some distance below the scleral opening, there is a sharply defined, round area of exposed sclera two-thirds the size of the pseudo disc, and elsewhere in lower fundus a small irregular area of coloboma of the choroid. Three other members of the family were examined and found to be free from fundus defects.

Fatigue of Convergence, and Its Varieties.

Dr. Lucien Howe, Buffalo, N. Y., read this paper.

This paper is supplementary to my paper describing the ergograph before the American Medical Association in 1912. During the past year a considerable number of tracings have been made by normal as well as pathological eyes. Fatigue is the *process* of becoming fatigued, or tired, when a muscle is repeatedly contracted. We should use the word "fatigued," and not "fatigue," to express the condition of a muscle which has thus repeatedly contracted. When the fatigue of a muscle is traced by a pen on the revolving drum of an ergograph, the strength of each contraction is shown by the vertical excursion of the pen and the time is shown by the horizontal distance traced on the drum. It can be said without fear of exaggeration that the ophthalmic ergograph gives us promptly more accurate and complete data concerning the development of fatigue, especially the fatigue of convergence, than can be obtained in any other way.

Dr. Charles H. May (New York) presented the model of an ophthalmoscope which could be used either as an ordinary reflecting or as a self-luminous electric instrument. The mirror was interchangeable. This arrangement proved useful when, for any reason, such as exhaustion of the battery, burning out of the lamp or injury to the cords, the electric ophthalmoscope became useless at a time when the defective parts could not be replaced. Under such circumstances, the electric mirror could be removed and an ordinary tilting mirror inserted; and the ophthalmoscope was then changed into one of the reflecting type.

Dr. S. Lewis Ziegler, Philadelphia, demonstrated an Ernst lamp and stated that the company had gotten out a very large model. They have perfected it and it gives a very beautiful illumination. You can illuminate the field of operation and the assistant can hold it in an easy way. It is adjustable. You can use it on either current. It gives normal values, such as you would have in sunlight. It is not so fragile as others.

Dr. Walter B. Lancaster, Boston, demonstrated on a rabbit an instrument designed to introduce the transilluminator behind the eyeball so that one could transilluminate in the optic near the posterior pole of the eye.

Dr. J. Herbert Claiborne, New York, demonstrated a new kind of cataract glasses, which were very light as to glass and frame. The glass weighed three-quarters of an ounce.

Dr. David Harrower showed a light to be used with the ophthalmoscope for illuminating. The battery can be bought anywhere for 75 cents, with lamp for \$1.25. Therefore it is a very cheap and simple lighting method.

Dr. J. Norman Risley announced that he had devised a table for use in the clinic room or office. The table gives ample room for everything that one may need, with a roller top covering all in.

Dr. F. H. Verhoeff exhibited an eye-dropper bulb, which he said was as good a transilluminating mirror as any attachment. He also exhibited an attachment made out of two thermometer cases, with a disk of hard rubber for color scotomata. He found that the best transilluminator was made by putting an electric ophthalmoscope, the ones that pull out are most convenient, and put a piece of the eye-dropper over the end of that and it makes a perfect transilluminator.

Dr. R. L. Randolph showed two cases. Case I. Presented a mass in the left eye lying a little below the equator of the eye. He thought it an inflammatory condition. Case II. One of sympathetic ophthalmia. A boy injured in an explosion two years ago by a torpedo.

Dr. F. H. Verhoeff showed slides of conjunctivitis, demonstrating an organism which he believed was the leptothrix and the cause of the disease.

Officers for Ensuing Year.

President, Dr. Robert Sattler, Cincinnati, O.

Vice-President, M. H. Post, St. Louis.

Corresponding-Secretary, Dr. Arnold Knapp, New York.
Recording-Secretary and Treasurer, Dr. William M. Sweet,
Philadelphia.

Next meeting place Hot Springs, Va. some time in May.

There were 95 members registered, the secretary considering it the largest attendance yet.

BERLIN OPHTHALMOLOGICAL SOCIETY.

SESSION OF FEB. 27, 1913.

I. Amyloid Degeneration of the Tarsal Conjunctiva.

Herr Watzold presented two cases: A 50-year-old woman, who, six years ago, in Posen, had suffered from trachoma and been treated for that affection for about two years. Three days ago she entered the outdoor department because of left-sided epiphora and both-sided heaviness of the eyelids. The tarsal conjunctiva exhibits in both eyes—in the left, however, more strongly than in the right—a grayish-yellow, glassy, tumor-like affair, about 6 mm. in thickness, of firm consistency and smooth surface. When the lids are everted, this breaks straight across. There is also present moderate scar-formation. Because a plasmon is more gelatinous, lobulated, and bossy, like the granuloma and the sarcoma—all of which are to be considered in the differential diagnosis—the case before us is one of amyloid degeneration of the conjunctiva. This diagnosis, furthermore, is confirmed by microscopic examination.

II. Elephantiasis Phlebektatica.

A 14-year-old boy, who became afflicted in his eighth year with an extraordinary swelling of the right ear, began soon thereafter to complain of a swelling of his eyelids. In the course of a year there set in also a steadily increasing, very disfiguring, doughy swelling of the entire face above the nose and lips. The tissues about the eyes are now cicatricial and nearly as hard as wood. Ulcers and lupus have never been present. The margins of the bony orbits are, as a consequence of periostitis, greatly thickened and extended. The *orbicularis oris* is firmly infiltrated, and, at the corners of the mouth, there can be felt hard knots about the size of a cherry. Greatly dilated veins in the region of the diseased parts of the face make probably correct a diagnosis of elephantiasis phlebeectatica.

Scleral Abscess.

Herr Meissner: About ten days ago there appeared in the private consultation-room of Knichmann, a man about 50 years of age, who complained that his right eye had been swollen for two days. The lids were only slightly swelled, but there existed severe mixed infection of the globe with great chemosis. On the limbus corneae, about in the vertical meridian was a slightly circumscribed swelling of the sclera, perhaps a half-pfennig piece in size. The eye was extremely sensitive to light and pressure. We diagnosed a scleritis, and looked especially for a specific or tuberculous etiology. No such etiology was justified by the anamnesis. The temperature was normal, the Wassermann negative, and an injection of $\frac{1}{2}$ ccm. tuberculin, 1/10000, gave neither a local nor a general reaction. Two later, before the second tuberculin injection was made, the pea-sized prominence on the sclera grew more distinct, and developed in its center a yellowish, transluminous, area of necrosis, so that we diagnosed an abscess of the sclera. Just as we expected, an incision brought out pus—the *staphylococcus aureus* being found both in culture and in smear. The scleral abscess is now healed completely. This case, now so briefly sketched, is also remarkable from the point of view of general medicine. We had to do, apparently, with a metastasis. The excitant body could only have arrived by way of the blood. The abscess lay exactly in the region where the anterior ciliary vessels perforate the sclera, and we must, therefore, postulate an embolism.

The point of origin for the septicaemia we suspect to have been a simultaneous cystitis and prostatitis. Indeed, in the urine an excitant was easily demonstrated. Quite to the contrary, however, a culture from the blood gave negative results. For the merely temporary presence of the micro-organism spoke also the circumstance that, one day after the scleritis, a tolerably large furuncle appeared upon the buttocks.

On Functional Treatment After Squint Operations.

Herr Adam: In the effort to cure strabismus by means of exercises, the subject of functional after-treatment has well-nigh been forgotten. The operative treatment removes only a part of the disturbances which, in their totality, make up the conception of strabismus. With the determination and rectification of the strabismic malposition, the very essence of a case of squint has by no means been exhausted. There

is, in fact, an entire group of sensory disturbances which remain, subsequent to an operation, and whose alleviation is the task of functional after-treatment.

I. False localization. This, of course, is done away with, in the great majority of cases, by the operation. Not, however, in 2% of the cases.

II. Diminution of visual acuity. The acuity must be increased by means of visual and reading exercises. These sometimes succeed to an astonishing degree. From the mere ability to count fingers at two meters, the acuity often rises to as high as 5/15.

III. Suppression of the image in the formerly squinting eye. This can best be done away with by means of the amblyoscope. Here, however, the cases of *strabismus alternans* often present especial difficulty, inasmuch as they exhibit a regional suppression in the macular area.

IV. Faulty fusion. This can be so improved by stereoscopic exercises that, in about 80% of all cases, binocular single vision can be obtained. Binocular depth-perception, however, can be secured only in about 20%.

Only when the sensory disturbances have been done away with and the fusion sense has been excited to action, can an operator hope that the good effect of his operation has been rendered lasting. Only operations in conjunction with functional after-treatment guarantee a permanent result.

SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING FEBRUARY 20, 1913.

DR. WILLIAM CAMPELL POSEY, CHAIRMAN, PRESIDING.

Mucous Patch on Eyelid.

Dr. C. E. G. Shannon exhibited a man having an extensive mucous patch on the inner surface of the upper lid, with a rather punched-out, crescentic outline. The floor was bathed with an offensive, virulent discharge, and the severe inflammatory swelling of the lid associated with this condition suggested syphilitic tarsitis. The initial lesion appeared elsewhere three months previously. *Spirochaeta pallida* were demonstrated by Dr. Rosenberger in spreads from the eyelid, and the Wassermann reaction was strongly positive.

Third Nerve Palsy.

Dr. C. E. G. Shannon exhibited a colored man, aged fifty-three years, who had a complete palsy of the third nerve

on the right side. He had been under treatment for syphilis for a year at the age of nineteen years. The onset of the palsy was very rapid, becoming complete within three hours. The right lid was closed and the eyeball deflected to the right, while excursion inward, downward, and upward was entirely lost. The pupil was dilated and unresponsive. There was slight exophthalmos. By the second day the pupil had contracted and responded freely to stimulation, and within a few days there was slight recovery from the palsy of the extrinsic muscles and the levator. The Wassermann reaction was strongly positive.

Ruptured Choroid Due to Gunshot Wound.

Dr. Frederick Krauss presented a case of rupture of the choroid, with extensive choroidal degeneration, resulting from a gunshot wound of the orbit. A 22-caliber rifle shot entered the upper outer part of the orbit and lodged in the apex near the optic nerve. It caused no disturbance and was allowed to remain. There was a large rent in the choroid in the macular region; beyond this there was a complete atrophy of the choroid on the temporal side, apparently to the ciliary body. The other half of the retina was normal. There was hemianopsia. The vision has improved from hand movement to 5/40 of normal.

Glioma of the Retina.

Dr. George S. Crampton exhibited a boy, aged five years, having an intra-ocular growth, which in some respects simulated a sarcoma of the choroid, although subsequent microscopic study proved it to be a glioma of the retina. The eye was apparently healthy until eighteen months ago, when it was noticed to turn in, and one year later it was found to be blind. Soon afterward slight redness and other threatening symptoms were noted. When exhibited a large, light brown, slightly nodular mass filled the posterior chamber and could be easily studied through the dilated fixed pupil and clear lens. The tension was plus two, with resultant slight ciliary staphyloma. The child was robust and otherwise healthy, and no local glandular involvement was noted. The misleading brownish color was due to hemorrhages in the deeper portions of the growth.

Choroideremia.

Dr. Harold G. Goldberg exhibited and briefly described two cases which he believed to present a congenital absence

of the choroid—choroideremia. Brother and sister, aged respectively twenty and twelve years. The general characteristics of the cases were alike. There was a complete absence of the choroid at the periphery, so that this membrane was represented by an irregular ring varying in breadth in the more extensive case from 4 to 6 cm. by ophthalmoscopic measurement. The retinal and ciliary vessels were seen coursing over the bare areas. The point of particular interest was the character of the pigment, and it was upon this peculiarity that the diagnosis was chiefly based. This differed from the products of degeneration in presenting a healthy cellular appearance, and was believed to be the retinal pigment epithelium which had accumulated at the line of demarcation. The same general character of pigment was found elsewhere throughout the fundus. In the boy there was also a nuclear opacity of both lenses and an absence of the choroid surrounding the disk.

Dr. G. E. de Schweinitz, discussing Dr. Goldberg's cases, said that in his experience similar lesions had been encountered three times. In one patient, a comparatively young man, after the subsidence of a violent uveitis, the entire periphery of the eveground exhibited large oval areas, separated by lines of pigment, of complete absence of choroidal tissue, many of them crossed by broad vessels. In a second patient, a woman, aged thirty-five years, precisely similar areas were visible as they were in a man of about forty years, in one eye, the other having been destroyed by an injury. In none of these patients, however, had the lines of pigment exhibited the characters seen in Dr. Goldberg's patients, that is, the pigment borders were like those usually bounding an area of retinochoroidal atrophy. Admitting the value of Dr. Goldberg's argument, and the applicability of the theory advanced by Collins and Mayou in explanation of failure of the development of the choroid, Dr. de Schweinitz would hesitate to classify the fundus lesions in Dr. Goldberg's patient with choroideremia, as this term is ordinarily understood. It seemed to him, with the widespread finer lesions which were present in the central areas of the fundus, which certainly represented spots of retinochoroiditis, something like those seen in inherited syphilis (although he understood this taint had been eliminated by a Wassermann test), as well as with the changes and opacities in the vitreous, it was difficult to believe that an inflammatory process, prob-

ably intra-uterine, was altogether innocent of etiological relationship to this condition. It was, of course, perfectly possible that the peripheral areas represented congenital failures in the development of the choroid, and that the central lesions were of an inflammatory origin, in short, that there was a combination of two processes. It seemed to him, fully realizing the difficulty of depicting such lesions with accuracy, that the water-colors exhibited were imperfect in that the finer lesions were not represented, and he hoped that this might be corrected, as Dr. Goldberg's paper and patients were of unusual importance and interest.

Dr. Zentmayer said that based upon the very brief opportunity he had to examine the cases he would view them as instances of intra-uterine inflammation. There were, however, some features indicating atypical development: occurrence in two members of the same family; having the same general characteristics; the lesions having a conformation explainable upon the hypothesis of Collins and Mayou. In these cases the supposition being that there is a failure of development of the long ciliary vessels. Accepting this view, still the cases do not conform to the type described under the name of "choroid-eremia." His recollection of the conditions present in the cases collected by Nettleship was that in all the lesion was bilateral and there was an entire absence of the choroid except for a small area at the macula.

Dr. Holloway stated that he thought in the few reports collected by Nettleship and in the recent case of choroideremia associated with retinitis pigmentosa, reported by Alexander, that a few patches of choroidal tissue remained, one of these being usually in the macula. The much contracted fields shown by Dr. Goldberg's patients conformed to those usually found, although Alexander's patient had a ring scotoma. Bradburne had recently referred to a patient showing as a solitary lesion a large coloboma about the disk, such as was present in the left eye of one of these patients, and Jessop had also referred to an analogous case, both the patients being hyperopic.

Bilateral Aniridia; Ectopia Lentis; Pathological Cupping of Disks.

Dr. T. B. Holloway exhibited a boy, aged ten years, who had recently been admitted to the Pennsylvania Institution for

the Instruction of the Blind at Overbrook. The following history was obtained from his application blank:

Impaired vision was first noted at the age of three years. He has never had convulsions or any serious illness, neither has he any deformity aside from that described below. He is the oldest of three brothers. The brothers, parents, and grandparents are said to be free from any ocular defect, deafness, or insanity. There is no history of consanguinity. Upon examination there can be noted a horizontal nystagmus, with a tendency to lateral deviation of the eyes to the left. The corneae measured 11 mm., and were free from any pathological lesions. Careful examination failed to show any evidences of iris tissue in either eye; the lenses were displaced directly upward, so that the lower border of each lens corresponded to the horizontal midline of the cornea. Each lens was clear aside from a few very vague dots, whether these were congenital or acquired is an open question. At the lateral angles the radiating fibers of the suspensory ligament could be seen, but there was a wide defect directly downward. The fundus examination, either through the aphakic or phakic portion, revealed marked pallor of the disks with practically complete deep cups and characteristic bending of the vessels. The tension was normal. The refraction of the eyes had not been carefully worked out, but a minus lens somewhat improved vision.

Punctate Cataract.

Dr. T. B. Holloway exhibited a male, aged thirty-two years, who had entered the University Hospital complaining of chronic diarrhea, nausea, dizziness, headache, and general weakness. He was poorly nourished and had a slight general glandular enlargement, but denied venereal disease. There were no definite lesions found in the heart, lungs, or liver. On one or two occasions a faint trace of albumin and a few hyaline casts had been found in the urine. An X-ray examination showed ptosis of the transverse colon, splenic and hepatic flexures.

In each lens there was a subcapsular bar-like grayish opacity, and surrounding this in the anterior cortical layers, of the lens could be noted numerous punctate dots, showing a distinctly blue color by oblique illumination. A similar layer of dots could be noted in the posterior cortical layers, but there was no central posterior opacity, and the nucleus appeared to

be clear. These dots did not extend to the very periphery of the lens, but seemed to conform in their extent to a large lamellar cataract. The dots were most numerous at the periphery of this area.

The patient has two brothers, one of whom is said to have weak eyes, but his exact ocular condition is not known.

A Case of Epidermolysis Bullosa and the Ocular Lesions.

Dr. George E. de Schweinitz reported the history of a man, aged thirty-five years, who since childhood had been the subject of this rare cutaneous condition, the bleb formation having chiefly afflicted his neck, upper back, wrists, and hands. For sixteen years he had been subject, entirely in the right eye, to attacks of bleb formation lasting from two hours to two days, and always appearing in the early morning. There is a vague history of foreign body on the cornea some time prior to the formation of the bullæ, which may have been the starting-point of the corneal disease. Treatment had been entirely unsatisfactory. Dr. de Schweinitz compared this condition to the so-called relapsing erosion of the cornea, and discussed the mechanism of the formation of corneal bullæ, making special reference to the change in the form of the basal cells as a determining factor in the loosening of the epithelium from Bowman's membrane and the forcing beneath it of fluid, and comparing this to the changes which had been found in the skin in this disease, where there is a degeneration of the basic portion of the rete, local irritations causing exudation, which thus detaches the loosely fastened rete and gives rise to bleb formation.

Dr. Ziegler, in discussing Dr. de Schweinitz's cases of epidermolysis bullosa, stated that he had recently seen a case of this character that suggested some dependence on an intranasal lesion of the same side and asked whether the nasal disturbance and the skin lesions in the case cited were confined to the side on which the eye was involved, and whether the nasal lesion was located on the septum.

In his own case, prompt relief was secured by the internal exhibition of morphine, hyosine, pilocarpine, and strychnine, which combination he had previously recommended as an abortifacient in acute glaucomatic attacks. This would seem to indicate some underlying pathogenic factor in the sympathetic nervous system, which was manifested by a local lym-

phatic dyscrasia. He had also found some advantage in the use of positive galvanism applied directly to the eye.

Closing the discussion of his paper, Dr. de Schweinitz said in reply to Dr. Ziegler that the nasal surgeon had reported ethmoiditis, but he had not stated whether it was more pronounced on the right side. It probably was, however, as pain and nasal discomfort had been greater on this side. He thought the origin of the formation of bulla in the cornea had probably started in some small injury, for example, by a foreign body, whereby the epithelium had been loosened, changes had taken place in the foot cells, so, that their firm attachment to Bowman's membrane was lost, fluid was forced beneath the epithelium, and the formation of a bleb followed. Doubtless the cornea of a patient with this skin disease was prone to the formation of blebs on slight provocation, just as his skin became the seat of bullæ under the influence of trifling irritations.

Concerning Dystrophy of the Corneal Epithelium, with the Report of Two Cases.

Dr. G. E. de Schweinitz reported the case history of two patients, a man, aged seventy-three years, and a woman, aged about sixty years, who showed in typical manner the lesions described by Fuchs under the title of dystrophy of the corneal epithelium. In the first patient these lesions appeared thirteen years after a successful cataract extraction, which had secured for him normal vision; tension was not raised, being only 18 mm. with the Schiøtz tonometer. The lesion was unilateral. In the case of the woman the lesion was bilateral; more pronounced in the right than in the left eye; no sign of increased tension; Schiøtz tonometer registered $23\frac{1}{2}$ mm. In neither of the patients was there the slightest local irritation. Treatment was of no avail in the man. Prolonged diionin treatment associated with the administration of small doses of biniodide of mercury appeared to be slightly beneficial in the woman. Neither patient exhibited any constitutional disease. Dr. de Schweinitz briefly discussed the differential diagnosis between this disease, keratitis profunda, interstitial keratitis, senile sclerosis of the cornea, and glaucomatous corneal haze.

Eye Injuries from Aniline with Report of Four Cases of Injury from Aniline Pencils.

Dr. George S. Crampton sketched the history of aniline

from the discovery of amidobenzole by Unverdorben, in 1826, as a product of the dry distillation of indigo to the comparatively recent studies of Chiari, Bergen, Vogt, and Graffin on the effects of aniline preparations upon the tissues of the eye.

Vogt's experiments upon rabbits led to the conclusion that only basic aniline colors are injurious, and a substitution of acid salts was recommended for use in the manufacture of indelible inks and pencils. Graffin dusted about the same amounts of crystal violet, Victoria blue, and malachite green into the conjunctival sacs of rabbits; these produced panophthalmitis. The following caused inflammation of the conjunctiva and cornea, namely: prein, safranin, uramin, rhodamin B. and rhodamin G. G. Methylene blue irritated the conjunctiva. Congo red, tetrazin, eosin, and water blue give rise to no irritation. The foregoing results were confirmed by the examination of a group of workmen in aniline colors.

In treating eye injuries from aniline pencils efforts should be made to remove the particle of lead as soon as possible, although it be deeply embedded in the orbital or ocular tissues, as the vitality of the corneal epithelium is quickly diminished by the outflow of dye. Complete exfoliation of the epithelium results if the amount of aniline color be excessive or its presence long continued, and opacities and serious loss of vision may result. The disfigurement from the staining of the tissues is unimportant, as it disappears rapidly. Vogt recommends prompt irrigation with a 5 per cent. solution of tannin instead of the usual colleria.

Case I. A man, aged forty years, while wrestling with a friend who had an aniline pencil in his mouth, was wounded by the point penetrating deeply into the internal rectus muscle of the left eye. The pencil entered about 4 mm. back of the corneal limbus and broke off in the tissues, leaving the point and 3 or 4 mm. of the cedar between the muscle and the sclera. The wound was deep and on account of the attenuated nature of the exposed sclera the removal of the foreign body proved difficult, as rupture was feared. Seventeen days passed before the last particles of cedar were removed; in the meantime the corneal epithelium became stripped and largely regenerated, leaving, however, a large dense central macula.

The tenth day after the injury, following an unusual outflow of pigment from the depths of the wound, the lids were

found to be rather firmly attached to the eyeball by a thick layer of fibrin-like material, and excursion was much limited. The surfaces bled freely while being separated by means of a moist cotton applicator. The exudate disappeared rapidly and liquid alboline prevented further adhesions. Rupture of the eyeball was avoided, but the corneal macula will be a permanent impediment to good vision.

Case II. A man, aged twenty years, was struck in the eye by a fragment of aniline pencil, which was removed two hours later. Six hours after the injury the corneal epithelium had disappeared except at the limbus, and there was intense pain and photophobia. The epithelium registered in a few days, and there was no loss of vision.

Case III. A man, aged eighteen years, was struck beneath the supra-orbital ridge by the point of an aniline pencil, which entered 2 cm. above the inner canthus and broke off in the wound. None of the dye reached the cornea or conjunctiva. It was not known at the time that any lead had been left in the wound. On the twelfth day it was removed by incision into a painful, fluctuating mass.

Case IV. A young man appeared for treatment a few hours after having been struck in the eye by a flying chip from an aniline pencil. The staining was moderate, as the foreign body was not retained and the corneal epithelium was not denuded. Complete recovery resulted in a few days.

Dr. Hollaway referred to the serious nature of burns of the eye from the strong alkalis and carbolic acid, which has but feeble acid properties, and recalled the recently reported cases of caustic burns of the eye from golf-ball accidents. He stated that Vogt, in addition to his aniline experiments, had also experimented with the strong acids and alkalis, and Vogt thought the acids less injurious because they acted upon the epithelial covering of the eye, forming a thin protective layer of coagulated albumin, which tended to prevent further action on the deeper structures.

Dr. Shumway mentioned the case of a young girl who had been struck in the cornea by a chip from the point of an aniline pencil. A corneal ulcer resulted which, while healing promptly, proved to be the exciting cause of a convergent strabismus, necessitating operation.

GEORGE S. CRAMPTON, M. D., Clerk.

ST. LOUIS MEDICAL SOCIETY.

OPHTHALMIC SECTION. MARCH 5, 1913.

Two Operative Cases (a) Frost-Lang Operation. (Implantation of Glass Ball in Tenon's Capsule). (b) Heistrath's Excision of the Tarsus. Presentation of Patients.

BY DR. JOHN GREEN, JR.

This patient, a little girl, came to the Children's Hospital about a month ago. She is, as you see, a victim of ophthalmia neonatorum. In the right eye the lower portion of the iris is engaged in a corneal scar. There is an anterior polar cataract. The left eye was distended and sightless and painful at times so I decided to enucleate it. I thought it best to insert a solid sphere into Tenon's capsule, because, as we know, after simple enucleation in children there is apt to be failure of development of the bony structures of the orbit. I hope that the implantation of the solid sphere may prevent this secondary failure of osseous development. Dr. Greenwood, of Boston, has done this operation in about 75 cases and it was on his recommendation that I first undertook it. The technique is exactly as Dr. Greenwood outlined it to me. The conjunctiva is incised in the usual way, each rectus tendon is caught up by a Prince's advancement forceps, the conjunctiva is well separated from the muscle, and the muscle from the globe. A silk suture is then passed through each rectus tendon. The eyeball is very carefully enucleated and all bleeding checked. That is a very important point. A purse strong catgut suture is then put around the edge of Tenon's capsule. An assistant places the glass ball (about the size of a small marble) in the cavity, holds it in with gauze and the purse string suture is tied. The glass eye is now completely covered, and the rest of the operation consists simply in tying the external to the internal rectus and the superior to the inferior and then taking three or four interrupted sutures to approximate the conjunctiva. The reaction after the operation varies greatly. In one of my cases there was tremendous swelling and pain, controlled in the course of 48 hours by cold applications. In the others the reaction has been no greater than what usually follows a simple enucleation. This operation was performed only thirteen days ago. You will notice that there is much less sinking in of the upper eye lid than is the case after simple enucleation. The rotations of the

prothesis are better than after simple enucleation in the lateral direction but not in the vertical direction. The child has only worn an artificial eye for a day so we may hope that the cosmetic result will eventually be better than at present.

The second patient is a boy on whom I have performed the Hei-rath excision of the tarsus. He has been treated at the various eye clinics for trachoma for the past four or five years with only temporary improvement. He was just entering the cicatricial stage. No pannus. Last summer my first experience with this operation was an encouraging one. A young woman came to me with a very bad trachoma of seven or eight years standing, extensive pannus and ulceration; in a word, the usual picture of a badly neglected trachoma. I excised the tarsus in both eyes and in six weeks all the ulcers had healed, the pannus had cleared up, vision had greatly improved and at last reports, five months after the operation, there were no signs of inflammation in the eyes. This operation is gaining a great deal of favor in New York. Dr. Woolton and Dr. Claiborne are ardent champions of this procedure. The first man in this country to speak of it and to advocate it with favor was Dr. Casey Wood, of Chicago. I suppose you are all familiar with the technique of the operation. The lid is everted and these forceps applied (designed by a nurse at the New York Eye and Ear Infirmary). Another forceps designed by Dr. Claiborne may serve a bit better. The tarsus is clamped at its lower edge and the lid lifted up, thus displaying the superior fornix. The incision is made along the upper edge of the tarsus, and goes through the conjunctiva. The conjunctiva is then dissected backward towards the fornix and a little on to the globe and three double armed sutures are inserted. The clamp is removed. For the second part of the operation, I use Dr. Ewing's excellent lid forceps. The second incision cuts through the tarsus from the outer to the inner angle, 3 mm. back from the ciliary border. The aim is to take the ends of this incision curve around and meet the ends of the first incision. For the freeing of the tarsus I use a thin knife rounded at the end. The lid is replaced in normal position, the position of the sutures is carefully noted in order that they may be brought out through the skin of the lid at a point opposite the point of insertion. I have followed Claiborne's suggestion and brought out the stitches through the skin of the lid rather

than through the anterior remnant of tarsus, as advised by Heisrath and other operators.

DISCUSSION. Dr. Weiner: I have never seen any advantage in introducing an artificial globe either glass or metal. I see a great many objections. It is rather early to remark upon this case as the operation was recent and there is still quite a bit of swelling, but it appears to me that there is very much less excursion in any direction of this eye than in an eye where an evisceration has been done or an enucleation. And in an eye where evisceration has been done and the muscles are intact and in place of the sclera, it seems to me that there is not any more sinking in of the socket or of the upper lid than in this case, especially with a reform eye. Then besides, I think the patient is infinitely safer without anything introduced in that orbit.

In the second case I do not see any special advantage gained in removing that tarsus and I think it is a mistake to have the tarsus removed. There are very few cases that do not respond to local treatment and I think I would rather have it take longer and have a better ultimate result than remove the tarsus immediately.

Dr. Charles: About the first case, the thing I like is that operation is especially adaptable to children because it would probably stimulate growth of the orbit, giving it a chance to develop, which it might not perhaps have otherwise. I would like to know if anybody has seen these glass balls after several years? Would they become rough in the course of time? Some of the constituents of glass (for example, sodium) are soluble.

As to the second operation, it seems to me it is especially applicable in these rare cases where other treatment does not seem to avail. We, all of us, have an occasional case always with greatly thickened tarsus which suffers relapse after relapse, just as we believe that it is about well.

Dr. Jennings: I have had some experience in the use of glass globes but on account of the reported danger of roughening after a series of years, the last ones I have used were made of gold. I agree with Dr. Wiener that if an evisceration is done you get a very movable, satisfactory stump. When I make my incision I pull the muscle forward and tie it to the conjunctiva on that side. Of course, I believe that after every

enucleation the muscles should be attached to the front portion of the stump, and not be allowed to fall back.

In regard to the second case, it seems to me that the removal of the tarsus would be of benefit in those chronic forms of trachoma with entropion, but I should not care to remove it as long as the case was progressing nicely, and there was no particular amount of entropion.

Dr. Green, in closing: I know nothing about the erosion of implanted glass balls. Have you had any experience with them actually coming out? Dr. Jennings replied no.

Dr. Sweet, of Philadelphia, recently reported a series of cases in which he had done the Frost-Lang operation, using metal (platinum and gold) balls. He followed up his cases carefully to determine, if possible, any bearing the operation might have on the subsequent development of sympathetic irritation or inflammation and was able to satisfy himself that no such relationship existed. The present case is perhaps not a fair test of the operation. The motility of the globes is and has been defective since birth. (Recall that the patient has been worn longer. In one of Dr. Greenwood's cases, the too, that the operation was done only thirteen days ago and the child has been wearing the glass eye only one day. No doubt the cosmetic effect would be better when the prosthesis has been worn longer. In one of Dr. Greenwood's cases, the cosmetic result was so perfect that one could not tell at a distance of a few feet which was the natural and which was the artificial eye. There seems to be quite a difference of opinion as to the degree of motility after these operations. Dr. Sweet, in his series, found that the motility was distinctly greater in all directions than after a simple enucleation.

In regard to Heisrath's operation. This operation has been performed by Dr. Kubut, of Koenigsburg, more extensively than by any other surgeon. When first taking up his work in a trachoma infected district, he found that many patients who came originally to his clinic would soon drift away and on seeking an explanation for these defections he found that his patients were going to another clinic to have the tarsus removed, and they were quickly relieved of all symptoms. He was therefore practically driven to perform this operation as a means of saving the prestige of his clinic. It seems to be the consensus of opinion of those who have performed this operation most frequently that there is a very positive indication for it. The case presented had been under

treatment for several years, had been subjected to several operations and in spite of all presented all the earmarks of a progressive trachoma.

Hyalitis Caused by (a) Pus-Absorption and (b) by Intestinal Autointoxication.

Dr. J. W. Charles: The first case had been relieved of an optic papilloedema and paresis of the third nerve on the left side by a complete emptying of the ethmoidal and sphenoidal sinuses, in the Spring of 1911. In October, of 1912, the patient came with vision almost normal O. D. (19/15), numerous punctuations on the membrane of Descement, distinct haziness of the vitreous, veins large, but no lesion visible. She was placed in the Hospital of Washington University where Dr. Albert E. Taussig found physical examination normal, urine and faeces normal, Wasserman negative, and blood culture negative. Tuberculin subcutaneously not feasible on account of heightened temperature (von Pirquet, dubious in 1911). Blood count yielded a leucocytosis, the white cells ranging from 10,580 to 12,640, chiefly affecting the polynuclear neutrophiles, the lymphocytes and other cells being always normal in proportion. A suppurating sphenoidal sinus was finally found on November 3rd, but drainage did not relieve the hyperpyrexia. After resting at home for six weeks the patient was much improved with no headache, normal temperature, but with the hyalitis still persisting.

The second case was seen in 1911 after vision had failed in right eye for several months. O. D. V= 19/38, O. S. 19/12. Muddy vitreous on right side. Dr. H. W. Soper found the following: Patient had been operated for appendicitis one year ago. Has lost fifteen pounds in three months. Abdomen distended. Epigastrium tender. Urinalysis (24 hr.) 2000 cc., 1018, yellow acid, albumin faint trace, nucleo; no serum, sugar, or bile; large amount indican; no casts, blood or pus; few leucocytes. Feces acid, dark brown, 150 g., well formed. Many large clumps of mucus, no blood visible, no occult blood. Stomach contents after test breakfast 30 cc. yellowish liquid, chym fairly good, considerable excess of stomach mucus. Free HCl 50, total acidity 70. A diagnosis of catarrhal bronchitis, gastritis hyperacidica, and general autointoxication was made. Condition improved under strictly purin-free diet, and eye now sees 19/24 to 19/15. Patient is taking HgC 12 gr. 1/12 to 1/6 t. i. d. Wassermann and von Pirquet were negative.

No discussion.

A Case of Bitemporal Hemianopsia. Presentation of Patient.

Dr. Julius H. Gross: Spiller, in Posey and Spiller, on the question of Tumors of the Pituitary Body states:

"Tumors of the pituitary body not infrequently cause bitemporal hemianopsia, which later may give place to blindness. Choked disks may be associated with tumor of this part of the brain, but not infrequently the optic neuritis is of a mild grade or there may be optic atrophy from the pressure on the chiasma without previous neuritis. Polyuria and polydipsia, even diabetes mellitus have been observed as signs of such a growth. Acromegaly has been found so frequently in cases in which the pituitary body was enlarged that some relation between this disease and the alteration of the pituitary body probably exists. Sufficient cases, however, have been reported to show that tumor of the pituitary body does not always cause acromegaly. Bitemporal hemianopsia is a common sign of acromegaly. Bitemporal hemianopsia can be caused only by a lesion at the chiasm."

Mrs. W., age 64, came to the O'Fallon Eye Clinic about 6 years ago with the following history. About two years ago while out walking with some friends she noticed that objects appeared double, and that she could see only one-half of the object. She consulted a prominent oculist who treated her for sometime; the diplopia left, but her fields did not improve. At that time her vision was O. D. V= 10/120. O. S. V= 18/19. The vision in the temporal sides of both fields, excepting a small portion adjacent to the center of the field, was gone. The papillae were a grayish white, the vessels of normal size, very much as they now appear. Not any swelling. There is nothing in the patient's past ailments having any connection with her present trouble, except that goitre came on at the age of 19. Present condition: The patient feels well. Has normal appetite. Sleeps well, perhaps a little more than would be considered normal at her age. She has excessive thirst. Perspires easily on left side of face and body. The general physical examination shows that she still has goitre; the left lobe especially is large, although she states that it is much smaller than formerly. The left knee is stiff, an old trouble which has not any connection with the present ailment. There is present a fair percentage of sugar in the urine.

(To be continued)

A. M. A. MEETING AT MINNEAPOLIS, 1913.**OPHTHALMIC SECTION NOTES.**

Although the meeting this year of the A. M. A. in Minneapolis was not among the most numerously attended, because of the fact that the city is some hundreds of miles from the center of population and for other reasons having nothing to do with its many attractions, it was nevertheless a most interesting and instructive gathering.

The work of the Ophthalmic Section may be said to have begun by a conference, on Monday, June 16th, of a special Committee on the Conservation of Vision with the Council of Health and Public Instruction. This session was the outcome of a wish of both departments of the A. M. A. to begin a campaign of education and active work intended to supplement the labors of Park Lewis, Wm. Posey, Hiram Woods, Frank Allport, and many others who have for years been instrumental in disseminating knowledge concerning ocular hygiene and carrying into effect the axioms of preventive medicine and sanitation as related to the eye. It was finally decided by the council that they would appoint for the purpose of a committee, to work under their instruction and supervision and to succeed all committees now under their jurisdiction performing similar functions. The members of this committee are as follows: Dr. Frank Allport, Chairman, of Illinois, Dr. E. M. Alger of New York, Dr. W. E. Bruner of Ohio, Dr. H. D. Bruns of Louisiana, Dr. I. I. Carroll of Maryland, Dr. E. C. Ellett of Tennessee, Dr. Harold Gifford of Nebraska, Dr. Vard Hulen of California, Dr. W. B. Lancaster of Massachusetts, Dr. F. Park Lewis of New York State, Dr. Wm. C. Posey of Pennsylvania, Dr. W. H. Wilder of Illinois, Dr. Casey Wood of Illinois and Dr. Hiram Woods of Maryland.

The secretary of the council pointed out that the practical work of the committee would be greatly facilitated and the success of the scheme much enhanced if the chairman were a resident of Chicago and could thus confer constantly with the chairman and secretary of the council. In no other way could the varied resources of the *Journal* office and the association headquarters be fully utilized in the good work of preventing blindness and conserving eyesight. Moreover, the machinery of these offices could be thus employed in realizing the ambition of the committee not only to correlate its

activities with those of local societies but to establish, through the state and county organizations of the association, state societies and commissions for the conservation of vision where these are now lacking. It was also agreed that a report, bearing on this subject, drawn up by a committee appointed by the section chairman last year, with Wm. Campbell Posey as chairman, constitute a general basis for the work of the committee, so far as it does not conflict with the views of the majority.

The same evening the following papers on education for ophthalmic practice were read in an extra-session conference at the Hotel Dyckman:

How Ophthalmologists Have Prepared Themselves for Practice.

Dr. Edward Jackson, Denver.

The Obstacle of the Stand-Pat Attitude in the Medical Schools.

Dr. Frank Allport, Chicago.

Preparation and Needs of Students Seeking Post-Graduate Instruction in Ophthalmology.

Dr. A. Edward Davis, New York.

Teaching Pathology of the Eye to Those Preparing for Ophthalmic Practice.

Dr. Casey A. Wood, Chicago.

Systematizing and Improving the Teaching of Ophthalmology in Post-Graduate Medical Schools and Eye Hospitals.

Dr. William Zentmayer, Philadelphia.

These essays were fully discussed and much interest was excited by them. They will be published in a special number of the OPTHALMIC RECORD, probably about the first of August, with the gist of the remarks they elicited.

The regular session of the section opened Tuesday afternoon with the chairman, Hiram Woods of Baltimore; the vice-chairman, Edgar S. Thomson of New York; and the secretary, George S. Derby of Boston, at their posts. In the much-regretted absence of Wm. Campbell Posey, Casey Wood of Chicago was appointed a member of the executive committee. The energetic chairman, Albert E. Bulson, the genial third member, Adolf Alt, completed the triad. The delegate of the section to the House of Delegates, Thos. A. Woodruff, was also in constant attendance.

As an abstract of the papers, as well as of the discussion that followed the regular sessions will be published in this and

subsequent numbers of the *RECORD*, the reader is referred to our pages for a detailed account of the proceedings. It is sufficient to say here that most of the matter on the program was furnished by the younger element of the section—and it was, as a rule, a very creditable performance.

There was a meeting on the evening of June 18th to hear and discuss a paper on Preventable Blindness by Henry Copley Greene of Boston, Field Agent of the Massachusetts Commission for the Blind. This essay was largely the outcome of work done by the reader. To a well-considered review of the various subjects included under Conservation of Vision he added many personal observations and statistics that should be valuable to the newly constituted committee of the council of health and public instruction.

The report of the executive committee recommended the following officers who were elected for the ensuing terms: chairman, Frank C. Todd of Minneapolis; vice-chairman, William Zentmayer of Philadelphia; secretary (for three years), George S. Derby of Boston, Mass., reelected; executive committee, Albert E. Bulson, Jr., Fort Wayne, Ind.; Adolf Alt, St. Louis, Mo.; Hiram Woods, Baltimore, Md.; delegate to the House of Delegates, Melville Black, Denver, Colo.

The treasurer of the Knapp Testimonial reported a balance of nearly \$900.00 to the credit of that fund, which will, doubtless, be much augmented during the coming year. The committee on awards in this connection is John E. Weeks of New York, Edward Jackson of Denver, and Casey Wood of Chicago.

The executive committee's recommendation to constitute an enquiry into the proper attitude, in its legal and legislative aspects particularly, of ophthalmologists to optometrists and optometry was adopted, and a committee appointed to investigate the matter and report at the next meeting. Similar action was taken as to the teaching of ophthalmology in our medical schools.

Nearly 300 members were in attendance at the sectional sessions and the whole program—including a profitable display of new instruments, pathological specimens, patients, and other ophthalmic material—was, with few exceptions, carried out in its entirety and within the time limit. C. A. W.

NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Building, State and Madison Streets, Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

Dr. Mortimer Frank of Chicago has returned from abroad.

Dr. M. Wirths has been qualified as privat-dozent of ophthalmology in Rostock.

Dr. K. Wessely will succeed Prof. C. Hess as professor of ophthalmology in Wurzburg.

Dr. Cecil Shaw, lecturer on ophthalmology and otology at Queen's University, Belfast, is dead.

Dr. Morris Drossner, an ophthalmologist of Jersey City, N. J., died in that city May 25th, aged 70.

Dr. Rigobert Possek, privat-dozent in Gratz, has been made extraordinary professor in ophthalmology.

The new curator and librarian to Moorfield's (Royal London Ophthalmic Hospital) is to be Mr. R. A. Greeves.

Dr. John L. Short of Rollo, Mo., oculist and aurist to Grace Hospital at Versailles, Mo., died May 12, aged 59.

Mr. A. H. Payan Dawney was recently appointed full surgeon on the staff of the Western Ophthalmic Hospital, London.

The Convocation of the University of Manchester, (England) has voted that a diploma in ophthalmology is undesirable.

At the annual meeting of the Arkansas Medical Society,

Dr. H. Moulton paid a tribute to the deceased prominent members of the society.

Mr. Charles George Lee, formerly surgeon to the Liverpool Eye and Ear Infirmary and an ex vice-president of the Liverpool Medical Institution, died recently.

Dr. Boleslaw Gepner died recently in Warsaw, Poland, aged 78. Dr. Gepner was known chiefly through his translation of Donder's book into Polish.

Mr. Frank A. Juler has been added to the staff of the Central London Ophthalmic Hospital as assistant surgeon. Mr. S. H. Browning has been appointed bacteriologist.

The eye, ear, nose and throat section of the Jackson County (Mo.) Medical Society met in Kansas City, May 8. Dr. Hal Foster was chairman and Dr. R. J. Curdy, secretary.

Mr. Sydney Stephenson, the noted editor of the *Ophthalmoscope*, recently received the appointment of ophthalmic surgeon to the King Edward Memorial Hospital, Ealing, W. London.

A prize of 5,000 francs has been offered by an anonymous person for the best essay on the etiology, prophylaxis and treatment of those forms of iritis, irido-cyclitis or cyclitis arising from causes other than lues.

Drs. Samuel D. Risley and G. Oram Ring of Philadelphia are among the incorporators of the new Clinical Society of Philadelphia. The society will build a building for lectures, etc., which will be used exclusively by physicians, dentists and dealers in medical supplies and apparatus.

Dr. Flavel B. Tiffany, of Kansas City, Mo., is a party to a suit brought against the University Medical College to recover \$1,000 said to have been paid for stock in the college with the understanding that the plaintiffs be placed on the faculty.

Wearers of nose-glasses may now transform them into secure spectacles by attaching temples to the lenses by means

of a spring. This change is quickly effected and is very useful when riding in automobiles, playing golf or tennis, or for windy days.

Dr. T. Harrison Butler, editorial secretary of the Ophthalmoscope has received the appointment of ophthalmic surgeon on the staff of the Royal Midland Counties' Home for Incurables.

Dr. Herbert E. B. Dickson, formerly on the staff of the Royal London Ophthalmic Hospital, and a specialist in the diseases of the eye in Chicago, died May 15 at Hinsdale, Illinois, aged 49.

The following men will award the prize of 1,000 crowns given by the Hungarian Minister of the Interior for the best work on the cause of trachoma; Prof. E. V. Grosz, Budapest; Prof. Kolle of Bern; Prof. Nuttsal, Cambridge.

Dr. C. H. A. Westhoff, of Java, Dutch East Indies, is dead, aged 65. Dr. Westhoff was medical director of the Royal Wilhelmina Institution at Bandoeng, Java, and had made great progress in his work on the care of the blind.

A farewell dinner was tendered to Dr. George Mackay upon the occasion of his retirement from the post of ophthalmic surgeon to the Royal Infirmary, Edinburgh. Dr. Mackay received a silver bowl presented by his former house surgeons.

The death of Sir Henry Swanzy and his services to the community were fittingly recognized by a resolution presented at a meeting of the members of the council of the Royal Victoria Eye and Ear Hospital, Dublin. Sir Henry Swanzy left an estate of about \$62,000.

The Cincinnati Association for the Welfare of the Blind has proven the value of a visiting nurse who investigates each case of eye trouble and refers the cases to the proper hospital. 141 cases have thus been saved, and at an expense of only \$900 per year—one-fifth the cost of a blind child to the state.

Prof. Wolfgang Stock, professor of ophthalmology at Jena, has been honored by the King of Sweden with the order of the Swedish North Star.

The essay must be presented to one of the ophthalmological societies, and will be passed upon by three judges chosen from the chief eye institutions of Paris. The essay may be in French, English or German and must be sent to the Bureau des Annales d'Oculistique, 26 Boulevard Raspail, Paris, before August 15, 1914.

The Hungarian Minister of the Interior has decreed that all midwives be provided with a 1 per cent solution of silver acetate and a dropper. One drop of this solution is to be dropped into each eye of the new-born child, immediately after the eyes have been cleaned. A heavy penalty is prescribed. All pharmacists are required to stock the silver acetate.

Mr. Henry Eales, prominent Birmingham ophthalmologist, died recently, aged 61. Among many important appointments and offices held by the deceased are: Senior Surgeon to the Birmingham and Midland Eye Hospital; Ophthalmic Surgeon to the Hammerwich Hospital, Cannock; the Guest Hospital, Dudley and the Balsall Heath Dispensary.

It is said that the legislature of New Jersey is considering a bill to prevent the manufacture of so-called water-core golf balls, which have centers made of various caustic compounds. The reports of injuries to the eyes from cutting open balls of this kind are increasing and the United States Golf Association has sent out a warning notice advising that no make of golf balls be cut open.

The University of Colorado is the first American Institution to follow the lead of the University of Oxford, England in granting the degree of Doctor of Ophthalmology. On June 4th this degree was conferred upon three candidates who had presented theses on the following subjects. Dr. William H. Crisp, "The Nature of Trachoma;" Dr. George F. Libby, "Heredity in Ocular Disease;" Dr. Daniel G. Monaghan, "Methods of Asepsis and Antisepsis."

The Fourth International Congress on School Hygiene, and the first to be held in America, at Buffalo, August 25-30th, according to an announcement of the executive committee, will be by far the most elaborate effort yet made in this country toward getting the problem of school hygiene before the world. The first International Congress was held at Nuremberg in 1904, the second at London in 1907, the third at Paris in 1910. The objects of the Buffalo Congress are:

- (1) To bring together men and women interested in the health of school children.
- (2) To organize a program of papers and discussions covering the field of school hygiene.
- (3) To assemble a school exhibit representing the best that is being done in school hygiene.
- (4) To secure a commercial exhibit of practical and educational value to school people.
- (5) To publish the proceedings of this Congress and distribute them to each member.

The meeting of the American Medical Association in Minneapolis was, of course, as might have been expected, an unusually delightful and profitable affair. Dr. Frank C. Todd was chairman of the committee on arrangements and everything passed off as smoothly as might be expected by those who are acquainted with Dr. Todd's great executive ability.

The annual banquet was held at the Minneapolis Club and was a most unique and enjoyable affair. The banquet included the two sections of ophthalmology and oto-laryngology and was attended by about 250 men. It was a most happy idea to have the banquet a joint affair and it is to be hoped that this will be continued in the future. Dr. J. A. Witherspoon, president of the A. M. A. addressed the banquet and at the speakers' table were Drs. Witherspoon, Levy, Hiram Woods, Morton, Fisher, Derby, Shurley and Todd. Dr. Morton of Minneapolis had charge of the banquet, and introduced the toastmaster, Dr. Watson, who was "the best ever." Those responding to toasts were Drs. Witherspoon, Hiram Woods, Robert Levy and Fisher of Rochester. After the banquet a stereopticon exhibition was given, consisting principally of caricatures of prominent ophthalmologists and oto-laryngologists. They were all good and did not hurt anybody's feelings, which is quite

unusual in an attempt of this kind. Altogether the affair was a most happy one.

The Clinical Congress of Surgeons of North America will be held in Chicago November 10 to 15, 1913. The following preliminary clinical program has been arranged in surgery of the eye:

- FRANK ALLPORT—St. Luke's Hospital.
 CHARLES H. BEARD—Illinois Charitable Eye & Ear Infirmary—Tuesday, 2:30.
 FRANK BRAWLEY—St. Luke's Hospital.
 E. V. L. BROWN—Illinois Charitable Eye & Ear Infirmary—Saturday, 2:30.
 W. FRANK COLEMAN—Post Graduate Hospital—Monday and Friday, 4. Wednesday, 9.
 OSCAR DODD—Illinois Charitable Eye & Ear Infirmary, Wednesday, 2:30.
 C. GURNEE FELLOWS—Hahnemann Hospital.
 CHARLES H. FRANCIS—Policlinic Hospital—Tuesday and Friday, 9.
 MORTIMER FRANK—Michael Reese Hospital.
 WM. E. GAMBLE—University Hospital.
 S. MEAD HAGER—Policlinic Hospital—Wednesday and Saturday, 9.
 J. B. LORING—College of P. & S.—Wednesday, 3.
 G. W. MAHONEY—Policlinic Hospital—Monday and Thursday, 9.
 ALFRED N. MURRAY—Lake View Hospital—Tuesday and Friday, 1 to 3.
 WILLIS O. NANCE—Illinois Charitable Eye & Ear Infirmary—Monday, 2:30.
 BROWN PUSEY—Northwestern University Medical School and Wesley.
 E. F. SNYDACKER—Michael Reese.
 GEORGE F. SUKER—Post-Graduate Hospital—Tuesday, 9. Wednesday and Saturday, 2.
 RICHARD J. TIVNEN—Mercy Hospital.
 CASSIUS D. WESCOTT—St. Luke's.
 WM. H. WILDER—Illinois Charitable Eye & Ear Infirmary—Thursday, 2:30. Rush Medical College, Monday, 2:30.
 CASEY A. WOOD—St. Luke's Hospital.
 H. W. WOODRUFF—Illinois Charitable Eye & Ear Infirmary—Friday, 2:30.

NOTICE.

CENTRAL LONDON OPHTHALMIC HOSPITAL (NEW HOSPITAL), JUDD STREET, LONDON, W. C., ENGLAND.

A course lasting three weeks, comprising about forty lectures, will commence on Sept. 15th, embracing all the branches of Ophthalmology, viz., Anatomy, External diseases, Medical Ophthalmology, Use of the Ophthalmoscope, Refraction, Operative surgery, Pathology, Bacteriology and X-Ray.

The classes will be given by various members of the Staff, and are limited to a certain number of students. Early application is therefore desirable. For further particulars apply to the Dean of the school.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Patillo (P.-G.) J. F. Burkholder (E. E. N. T.) G. W. Mahoney (P. h.)	*Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)	G. W. Mahoney (Poli.) Richard S. Patillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Patillo (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.) Brown Pusey, N.W.U. Every day, 10-12 A.M.	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippenn (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippenn (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippenn (E. E. N. T.)
1 P.M.	.....	Willis O. Nance (C.C.S.)	.....	Willis O. Nance (C.C.S.)	.....	Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Alport (St. Luke's) *Fiann Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E. E. N. T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (Inf.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) *Wm. E. Gamble (P. & S.)	.....	W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusey (County)	.....

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. (Poli.: Chicago Polyclinic and Hospital, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington and Franklin Streets. Clinics all day.	Ills. Med.: Illinois Medical College, 182 Washington Blvd.	St. Luke's: St. Luke's Hospital, 1418 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2431 Dearborn Street.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXII

CHICAGO, AUGUST, 1913

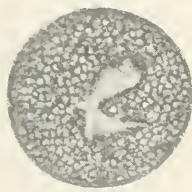
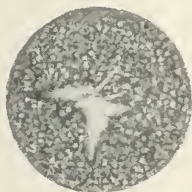
No. 8, New Series

ORIGINAL ARTICLES

UNUSUAL TYPES OF PUNCTATE CATARACT.

BY T. B. HOLLOWAY, M. D., PHILADELPHIA, PA.

From a clinical aspect cases of congenital cataract are not ordinarily of particular interest, but at odd times we encounter cases of this character that assume an unusual type, as for example the type recorded by Nettleship and Ogilvie, and referred to as discoid or Coppock cataract, or accepting the suggestion of Nettleship and Smith, Doyne's discoid cataract. Another unusual type is that referred to as axial or coralliform:



such as has been described by Gunn, Nettleship and others. At times ordinary lamellar cataract shows unusual markings, as in the patient whose history has been reported by G. L. Johnson. Congenital total cataract has been infrequently observed, and Becker has observed the transformation of a lamellar cataract into a total cataract. As to some types of punctate cataract it is frequently difficult to state whether a certain case may be congenital or acquired. The following examples of this variety of cataract seem to merit recording.

Case 1.* Miss G., aet, 28, single, first came to the office on 8/8/11, complaining of asthenopic symptoms. Upon examination the following lenticular condition was found. By oblique illumination, there could be seen in the right lens, situated beneath the capsule in the anterior layer, an irregular

*Some of these cases were exhibited or reported at the Ophthalmic Section of the College of Physicians since September, 1912.

central opacity, grayish in color, but at certain points presenting a bluish tint. Thickly scattered throughout the anterior layers and extending as far as could be seen through the dilated pupil, were numerous irregularly rounded small dots presenting a blue tint, what might be regarded as a robin-egg blue. With the ophthalmoscope the central opacity and the finer dots were much less pronounced. At the posterior pole could be noted a comma shaped opacity with the same surrounding dots. These finer opacities appeared to extend to the very periphery of the lens. Apparently the nucleus of the lens was not involved. The left lens presented similar changes except that the anterior central opacity assumed a butterfly shape and the central posterior opacity was a trifle larger, but also comma shaped. (See Fig.) The irides were blue, and aside from the changes already described, the eyes did not present any pathologic changes. The Javal ophthalmometer showed 2.50 D. of astigmatism, axis 75 in the right eye and axis 105 in the left. The patient's corrected vision was O. D. 5/10 — O. S. 5/12+. The patient was wholly unaware of the lenticular changes present, although she had worn glasses since the age of sixteen. Inquiry into her family history elicited the following:

Her maternal and paternal grandparents were dead; her father and mother were living and well, aged 54 and 50 respectively. (Since this history was obtained, her family physician has advised me of the death of the father from phthisis.) No history of consanguinity. She has two brothers living and well, the oldest 31, the other 24, both being unmarried. The father has two sisters and three brothers living, and four brothers dead. The mother has three sisters and three brothers living. The patient was not aware of any ocular trouble among her uncles, aunts, or cousins, except a paternal aunt aged 60, who has "bad eyes." Her younger brother has had some ocular discomfort but does not wear glasses. Upon inquiry it was found that her two brothers were residing in the city, and at my request they accompanied her on her next visit to the office.

Case II. The older brother, age 31, a policeman, was extremely well developed and had attained some local prominence as an athlete. He had never worn glasses and stated that he never had any trouble with his eyes. The vision of the

right eye was 5/12, that of the left eye 5/20. In each eye the Javal ophthalmometer showed 1.00 D. of astigmatism, with the axes slightly inclined. As far as could be determined, in each eye the lens revealed changes identical in character with those already described for the sister, except that the polar opacities were not as pronounced, the small dots were by no means as numerous, and they were more marked in the left than in the right eye. In the latter the anterior opacity consisted of irregular bar-like opacities obliquely placed, while in the left eye there were two irregular bar-like opacities vertical in position. There were no fundus changes. Inasmuch as the patient was opposed to the use of a "drop" an examination under mydriasis could not be made.

Case III. The younger brother, age 24, was of rugged and healthy appearance. He had been glassed about a year before for mild asthenopic symptoms, but the glasses were soon discarded. The vision of the right eye was 5/12, of the left eye 5/12, and 5/9 apart. In each eye the Javal ophthalmometer showed an astigmatism of 1.50 D. axis 90. Examination showed lenticular changes similar to those described for his sister and brother. In the right eye the anterior opacity was obliquely placed, bar-like, with a circular opacity about its middle. In the left eye there were two bar-like horizontal opacities, while extending vertically from the middle, above and below, was a fine linear opacity. The bluish dots were not as numerous as in the sister. Here, as in the other cases, the fundus of each eye was normal.

Efforts were made to examine some of the relatives of these patients, many of whom lived in the same town, but for reasons unnecessary to mention, I was unsuccessful. Some three months later, however, I did examine the father and mother, and neither of them showed any evidences of any lenticular changes. Six months later I also examined an aunt, the mother's youngest sister, and found that she had normal vision and no intraocular changes of any kind.

In the three patients whose histories have been cited, the changes were most marked in the sister and least marked in the youngest brother, and in all three cases the posterior opacity was much smaller than the anterior. The patients were all of healthy appearance, no evidences of rickets, no suggestive dental defects, and a urine examination, in the case of the sister,

was negative. For this last examination I am indebted to Dr. H. M. Keller of Hazleton, Pa.

The cases above described conform almost entirely to the patient whose history is referred to by Hess in Graefe-Sæmisch, except that he describes some very small brownish dots interspersed between the larger and rounded bluish gray dots. Fortunately Hess was able to examine his case microscopically. He stated that at the time of extraction, the lens was removed without leaving a trace of cortex. The lens measured but 2 mm. in thickness and its equatorial diameter was 9 mm. The central portions were studded with numerous moderately large foci, which stained deeply with hematoxylin, and about the periphery were numerous small, almost punctiform foci, which also took the stain deeply. Further peripherally there was a layer which, proportionately, showed but little change. A degenerative mass extended forward from the posterior pole almost to the middle of the nucleus, which was small and showed numerous spaces filled with detritus. Hess regarded as particularly interesting, the flatness of the lens, the diffuse character of the degenerative foci, and the marked development of both polar cataracts.

Case IV. Another case analogous to those described above has been but recently seen at the University Eye Clinic, having been referred from the service of Dr. Alfred Stengel. This patient was admitted to the hospital with a history of diarrhea, nausea, dizziness, headache and weakness. He denied the use of alcohol and tobacco, and there was no history of venereal disease. There were no definite lesions of the lungs, heart or liver, but there was a slight general glandular enlargement. The urine, on two instances, showed a slight trace of albumen and a few hyaline casts. A von Pirquet's test was suggestive, but a Wassermann test was negative. An X-ray examination revealed a ptosis of the transverse colon, splenic and hepatic flexures. An examination of this patient's eyes by oblique illumination revealed numerous punctate blue opacities, closely scattered through the deeper anterior cortical layers and a similar layer of opacities, with the concavity forward, in the posterior layers. The dots were most thickly clustered towards the periphery where the two layers met, but they did not extend to the equator of the lens as in the cases above described. There was no central posterior opacity, although a central anterior

bar-shaped opacity existed. In this case the opacities were deeper than in the cases above referred to, and the involved area in the lens conformed more to the extent of a large lamellar cataract.

Case V. This patient, a negro, age 17, had been subject to epilepsy since two years of age. He was recently seen at the Eastern Penitentiary, where he came under observation owing to a marked ectropion of the central portion of the lower lid, the result of an almost vertical knife wound that began 2 cm. above the center of the left eye brow and extended on the cheek almost to the level of the mouth. He had an alternating convergent squint. The vision of the right eye was 6/12 ??, of the left eye 6/15.

Further examination, with oblique illumination and a loupe, showed a well marked irregular Y-shaped central opacity, blue in color, situated in the deeper anterior cortical layer. This was surrounded by thinly scattered, very fine dot-like opacities, that could be traced toward the periphery of the lens. Occupying the posterior cortex was a similar layer of dots, the cavity directed anteriorly, but there was no central posterior opacity. In the left lens, the conditions were similar except, that the anterior central opacity was made up of a cluster of discrete and apparent confluent gray dots considerably larger than the surrounding dots. The finer opacities were so tiny that their true color could not be appreciated, and with the ophthalmoscope they were barely discernible.

Cases VI, VII. These patients were brothers: Russian Jews, aged 12 and 11 years. The younger patient was first observed, having been referred to the University Eye Clinic by Dr. Maurice Ostheimer from the Children's Dispensary, where he was being treated for an enuresis.

With the ophthalmoscope and a high power lens, there could be vaguely seen in the central posterior portion of the right lens, a number of fine pin-point opacities. By oblique illumination these opacities were much more readily seen, appeared larger and gray in color, were grouped centrally in the deeper cortical layers of the lens and it could be readily noted that they formed a layer the concavity of which was directed anteriorly. In the anterior cortical layers, not deeply situated, one tiny opacity could be seen. In the left eye identical changes were observed except that no anterior dot was present.

The dots were clustered in an area that had an apparent diameter of about 5 mm. The nucleus was clear. Aside from the lens changes there were no demonstrable lesions. The refraction was a compound hyperopic astigmatism of a moderate amount, but the best visual acuity that could be obtained was 6/12 in each eye. A short time later I examined the patient's brother, age 12, and found that he had lenticular changes identical with those just described, except that the dots were slightly larger in the right eye than in the left, and that several dot-like opacities could be noted in the superficial anterior stromal layer of the right lens, but there were no anterior opacities in the left lens. Subsequently I examined the father, age 43, and the mother age 40, and three sisters, aged 9, 7 and 6, and in none of these was there any pathological changes.

Cataracts presenting punctate opacities in the cortical layers especially towards the periphery of the lens, are not infrequently observed. I have seen a reasonable number in patients whose ages range from twenty-two to thirty-five years and older, but these cases presenting punctate opacities, blue or greenish-blue in color, associated with central anterior or posterior opacities, and in some instances both, in my experience, are not so frequently seen.

I regard the seven cases described above as congenital, but it cannot be determined whether the condition is a stationery or progressive one, although the latter may be possibly the case. In the patient studied by Hess, he refers to the unusual thinness of the lens, but in all of the cases above referred to, the lenses appeared to be of normal size, at least as far as could be determined by the usual methods of examination.

In 1910 Pearce, Rankine and Ormond* described numerous ocular changes observed in a number of Mongolian imbeciles, the most frequent of these defects being an unusual type of punctate cataract. Of the twenty-eight cases observed nineteen showed some form of lenticular opacity. They referred to two types, one observed among the younger children, which they have designated as congenital dot cataracts, while the type found in the older patients, although punctate, were regarded as lamellar: these were frequently associated with an anterior or posterior opacity. I believe Case V to correspond

*Brit. Med. Jour., 1910, 2, 186.

to the last mentioned variety, probably also Case IV. but here in a more advanced degree. Cases VI and VII. at least suggest their earlier type, although they described the opacities in their cases as deep to the cortex and nearer the anterior than the posterior surface.

It is probable that cataracts of the types above described are in certain instances overlooked in the course of routine hospital work, for unless they are studied by oblique illumination their true character cannot be determined. Hess cites Hirschberg as referring to certain congenital cataracts with greenish opacities, as *cataracta coerulea congenita*.

ORBITAL CELLULITIS CAUSED BY STAPHYLOCOCCI.

BY S. B. MUNCASTER, M. D., WASHINGTON, D. C.

In the evening of January 12, 1912, I received a telephone call from a patient who had arrived at the Union station, Washington, D. C., with her son. She informed me that he was in a dangerous condition from blood poison, and her physician had advised her to see Dr. J. T. Kelley. She had telephoned to Dr. Kelley's office, and he was not in. She said the disease had reached her son's eyes and she wanted me also to treat him. I directed her to go with her son, who was a well developed boy of 15 years, to Providence Hospital. Dr. Kelley and I arrived there shortly afterwards.

Upon examination we found the boy's forehead swollen with fluctuation of pus: right eyelids swollen: some swelling of left eyelids; only slight movement of right eyeball, owing to pressure of tissue from behind: and he had numerous pimples over his face, which had been picking with his finger nails.

Dr. Kelley made an incision into an abscess on the forehead, liberating considerable pus, and inserted a piece of gauze and applied a pressure bandage. I had a 25% argyrol solution put in the eyes and 20% ichthyol ointment applied to the lids to prevent infection, also cold applications for 15 minutes every hour until the next day; hot applications were made the next day and continued most of the time thereafter while he was at the hospital: soft diet was ordered: elix. ferri, quin. et strychn., teaspoonful three times daily, and alcohol rub

given. For the first 24 hours the temperature was 99° to 100°, pulse 62 to 80, resp. 24 to 28.

He complained of violent headache the second day. We started with aspirin, gr. V. three times daily, and continued this, varying with veronal or codeine to ease him at night.

On the 14th the pathologist reported, "examination of pus from the forehead, streptococcus not present." No examination for anything but streptococcus. From the 14th to the



17th the temperature, pulse and respiration were about the same as the first day, except that the respiration was 30 on the 14th.

He had considerable bleeding from the nose. This was overcome with sol. adrenalin.

On the 15th liq. panopepton was added to his diet, also milkshakes. On the 16th a swelling appeared on the right

side of the head causing much pain. Dr. Kelley lanced the abscess on the 17th. Pus flowed from the forehead, and nearly half of the scalp was found to be a mass of pus. Dr. Kelley placed in a drain of gauze and applied a pressure bandage. The patient had a fairly comfortable night. Temperature varied from 97 to 101°, pulse 70 to 80 and respiration 22 to 24.

On the 18th I made an incision through the upper lid above the inner canthus just below the supra-orbital arch, and let out fully half a pint of pus. A piece of iodoform gauze was packed in the opening for a dram. Pus came from the orbit for ten days and the swelling went down to about normal. Then an abscess formed above the external canthus and the pus burrowed into the orbit and came to the tissues under the eyeball and caused the supply of blood to be cut off from the cornea, and this was followed by a perforated ulcer of the cornea with pus in the anterior chamber of the eyeball. I lanced the conjunctival member twice to reduce the swelling, and drops of 1% sol. atrop, 25% sol. argyrol, and sol. boracic acid used with hot applications almost constantly for one month before I could see any chance of saving the eyeball. The vision with astigmatism corrected on Nov. 2, 1912, was 6-12 and the vision would be perfect but for an opacity just below the center of the pupil.

From the 22nd to the 31st he was losing flesh, suffered pain, vomited at times, and had the appearance of septicaemia, temperature 98° to 102; pulse irregular 52 to 104, respiration 18 to 34.

On the 31st mixed staphylococcus vaccine 250,000,000 was given with the hope that the serum treatment would save his life. After the injection he had a restless day, but a good night; temperature 102, pulse 110 and respiration 28.

For the next ten days the temperature, pulse and respiration continued high, and during this time an abscess formed in the lower portion of the orbit of the left eye. The lids were very much swollen, the eyeballs fixed to one side of the conjunctival membrane and pushed up near the lachrymal sac. I made a deep incision through the conjunctival membrane between the ball and orbit. A large amount of pus came out and continued to flow for six days. Cold applications were made to reduce the swelling and sol. bichloride 1 to 5000, sol. argyrol, and sol. boracic acid the infection disappeared in

three weeks. With the ophthalmoscope I found a congestion of the nerve and retina evidently caused by the pressure of the tissue against the optic nerve in the retina. In two months a cure was made with vision 20-15. On February 7th another syringe of staphylococcus vaccine of the same strength was given. On the 10th another examination of the pus was made and staphylococci were found, then a syringe of staphylococcus vaccine 150,000,000 was given. The highest temperature was 102^s, pulse 128 and respiration 32. At this time he had very little flesh, and was so weak he could not raise his head. One of the Sisters told his mother she had never seen a patient in the hospital recover when the poison reached the head and eyes, advised the mother to send for her minister and look after his soul. When the mother asked me in the morning, if there was any hope for her son, I told her he had probably one chance out of five to live and that he was a very ill patient.

On February 13th staphylococcus vaccine 100,000,000 was given. He slept fairly well. From the 14th to the 17th his temperature was 100 to 100^o, pulse 98 to 100, respiration 20 to 24. By the 17th of February he had improved to such an extent that he left the hospital and went to a place in West Washington where he stayed a month before leaving for home.

It is very evident that without the aid of vaccine the chances of this young man for life would have been very much minimized.

A REFLECTING BOOK MARKER FOR TEACHING READERS HOW TO AVOID EYE STRAIN.

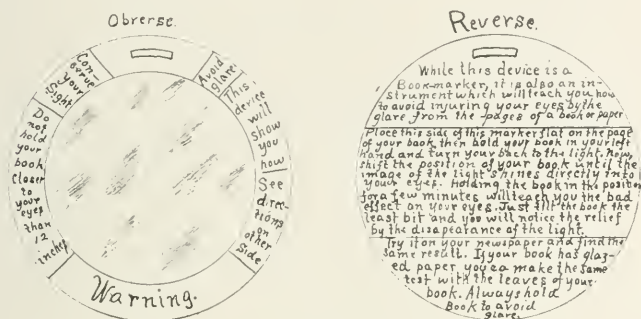
BY JOHN NEELY RHOADS, M. D., PHILADELPHIA, PA.

In order to impress strongly upon readers, especially book readers, the value of the conservation of sight, book markers, like that in the accompanying cut—entirely free from all advertisements—should be distributed with each book from all libraries. The librarian should, in other words, give out a reflecting marker with each book loaned and should personally instruct the applicant in its use, strongly imbuing him with the necessity of avoiding the glare which it shows.

Book publishers and binders should be urged to bind their publications with one of these devices attached, or at least

with a ribbon, to which a marker might be fastened, in order that every book reader may be educated to see his danger.

The marker should be stamped out of bright aluminum or tin, and have printed or stamped on it instructions telling



how a book may be held to produce the injurious reflections, and also how it should be held to avoid them. It is evident from the cut that the hole in the top is for a ribbon to secure the device to the book. To be sure, the marker need not be round, it may be of any shape; but it must have a reflecting side.

I want to emphasize the fact that it is a mistake to hold even dull paper at such an angle as would cause it to reflect vicious light into the eye if the paper were shiny. I firmly believe that all readers' eyes should receive less injury if their books or papers, no matter as to color or condition, were held at such an angle that reflected rays from the illuminating source could not enter the pupils.

Persistent use of this contrivance with book or paper, will I hope, soon render the reader as much afraid of glare as some of our patients already are of germs. About a year ago I made a demonstration of this evil to a prominent optician, and he seemed wonderstruck, but when I met him again some months later he told me that he was sorry I had called his attention to the matter, for now he could scarcely get away from the blamed thing.

It would be well for bookkeepers, stenographers, and even mechanics to take one of these devices with them in their labors so that they might avoid working in a glare, by placing

the instrument on their account books, or on any bright object over which they are engaged.

Rays from glazed paper are injurious, and printing should not be done on such stock. If, however, a reader is educated to hold properly his journal or book, he can read on glazed paper without injury—but the paper must be held flat, not rolled or curved.

Though the directions for using the marker can be read in the cuts, I repeat them here. Place the printed side of the marker against the page of your book, then, follow the conventional method, take the book in your left hand and turn your back to the light so that the light shines over your left shoulder. Now, shift the position of your book until the reflected light is pouring directly into your eyes. Holding the book in this position for a few minutes will teach you the bad effects of glare. Just tilt the book the least bit, and notice the relief caused by the disappearance of the reflection—it is a lesson you will never forget.

Notice that this phenomenon occurs when the book is held in what teachers consider the best position. The truth is, that for reading it matters not which shoulder the light shines over, nor does it matter which hand holds the book, if the holder is ambidextrous. If one who is writing is not ambidextrous, but, for example, right-handed, then the holding of the book in the left hand leaves the right hand free for writing, and, at the same time, keeps the writing itself out of all shadow.

I understand that the New York City Board of Education has a rule which directs the student to hold his book at approximately 45 degrees. He who formulated that rule evidently knew nothing about the conditions which cause a glaring reflex. The relative position of the source of illumination with respect to each child governs the angle at which the book must be held. Much depends on whether a student is attending a night school or a day school. If a day school, whether he is sitting near to, or far from, a window. If he is sitting within two feet of a low window, holding his book at 45 degrees would ruin his eyes, while, if he were ten feet away from the window, the same angle would produce no injury at all.

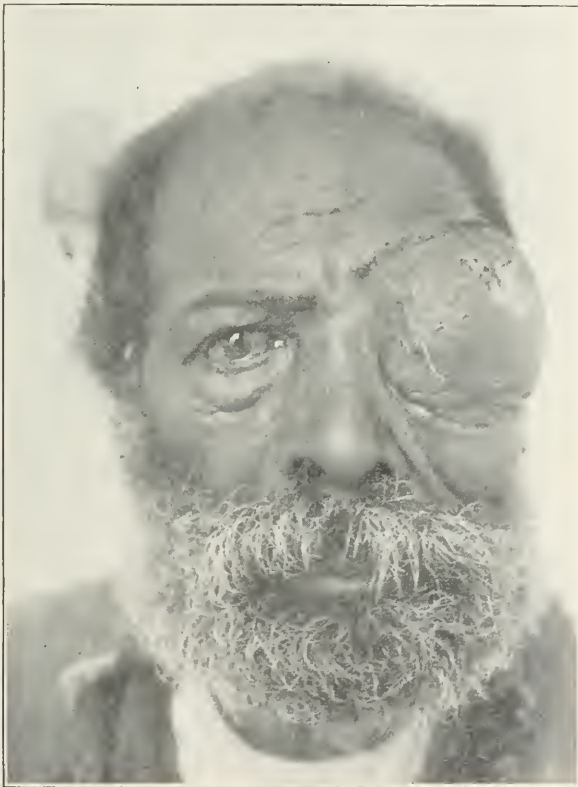
Let it be understood, then, that the relative position of the light to the reader governs the angle at which the book

should be held. Hence, it matters not whether the light is above or below, to the right or to the left, in front or behind, the reader must learn to hold his book in such a way as to avoid injurious glare.

A HUGE ORBITAL OSTEOMA.

E. M. BLAKE, M. D. CLINICAL INSTRUCTOR IN OPHTHALMOLOGY,
YALE UNIVERSITY.

The following case is interesting because of the great size of the tumor and the time during which it has grown.



The patient, a negro, aged 82, works as a tobacco packer. He ascribes the beginning of his trouble to the entrance of a particle of sawdust into the left eye about sixty years ago. He says that the next day after this slight traumatism the "eye

was sore and the sight ran out." The eyeball certainly did not collapse and become atrophic, for it can still be felt far down below the orbit and is dimly seen in the skiagraph. A swelling gradually appeared, and has grown steadily larger. Eight years ago, as the eye became painful, he consulted a general practitioner, who incised the tumor mass, since which time there has been a constant oozing of thick, offensive pus.



Apparently the overlying tissues became infected, either before or after the incision.

The patient comes, at this late date, for the removal, if possible, of the growth for cosmetic reasons.

The accompanying X-ray picture shows plainly the extent of the growth. Whether it arose as an osteoma of the frontal bone and has extended back to the apex of the orbit, or whether it began in the region of the sphenoidal cells is impossible to determine. It appears to invade the left frontal sinus. In

the thickened and edematous mass of the lower lid the eyeball can be outlined with the finger. The enormous stretching of the optic nerve is interesting. Partly on account of the patient's advanced age and the benign nature of the growth, but more particularly because of the deep penetration of the mass, it was thought unsafe to operate. The skin was slit up to allow drainage and antiseptic irrigations. The danger in removing such osteomata is mentioned by Fuchs, de Schweinitz, Arago, Tweedy and others, and the frequency with which death follows operation strikes one forcibly, as he reads through the titles of articles on orbital osteomata in the *Index Medicus*. Post and Alt (*Amer. Jour. of Ophthal.*, Feb. 1912), however, report a case in which the tumor arose about one-half inch back of the orbital edge, and extended almost to the sphenoidal fissure. The orbit was exenterated, and the growth appeared to have originated in the ethmoid cells, carrying part of the lacrymal bone before it. The patient recovered.

Orbital osteomata arise from the periosteum, and are most often found at the upper edge of the cavity, although other portions of the orbital edge may be the site of origin. They frequently arise from one of the accessory cavities and penetrate the orbital wall. They are usually sessile, but may be pedunculated, and they have been known to necrose and be spontaneously ejected.

(Lediard, Burow).

Many writers use the terms "exostosis" and "osteoma" as synonymous, but Da Costa points out the error of so doing. An exostosis is an irregular, local bony growth which does not tend to progress without limit and which is therefore not a tumor. The osteomata, on the other hand, fulfill the requirements of the term "tumor."

AN EARLY SIGN OF PARESIS OF THE FACIAL NERVE.

BY ALEXANDER ROCHESTER, M. D., CHICAGO, ILL.

Ocular symptoms are usually among those first discovered in a beginning paresis of the facial nerve, and the usual methods of examination will generally show the condition very early in its course. However, I wish to point out a procedure which has lately shown to me a beginning paresis before any of the ordinary signs or symptoms were positive. The test is

particularly of value after mastoid operations, when the surgeon is very desirous to know whether the least irritation exists in the seventh nerve.

The patient is told to close lightly both eyes; but not to squeeze them together as in the usual test. The observer then, grasping the patient's hand, holds it directly in front of his face, and instructs the patient to look exactly in the direction of the hand, while, however, he keeps the eyelids lightly closed. The hand is then gradually raised until it is beyond the upper border of the field of fixation. Now, at this time, if there be a paresis of the facial nerve, it will be observed that the lid on the affected side will be held closed with much more difficulty than will its fellow, indeed that the upper lid margin will rise slightly away from the lower one, disclosing a narrow band of sclera. If the irritation of the nerve be only of the very slightest, the eye may be closed, but the test is shown positive by the increased agitation and quivering undergone by the lid in its effort to retain the closed position.

7 W. Madison St., Chicago, Ill.

SARCOMA OF THE ORBIT FOLLOWING MULES OPERATION.

BY DOUGLAS WOOD, M. D., MINNEAPOLIS, MINN.

R. A. Male. Age 3½ Years.

Patient brought in because the mother noticed a "white spot in the pupil of the right eye." There was a history of a fall from a chair two months previous. At that time the child cried a little but did not complain of the eye, nor was it noticed that the eye was in any way affected.

April 13, 1911, when first seen, there was a slight ciliary injection. Three small white posterior deposits on the cornea. Anterior chamber deep, especially on the nasal side; an iridodonesis in the lower nasal region. The lens was cataractous and seemed to be displaced posteriorly, up and out. Tension, normal. Perception and projection were present.

The condition was explained to the parents and they refused to have anything done, as long as the child was not suffering apparent pain.

Next seen, July 31, 1911, the case presented marked pain, marked ciliary injection, and steamy cornea. Tension

+. White, brown and Black K. Ps. Cataract pushing iris forward. No perception of light.

A Mules Operation Was Suggested.

Aug. 2, 1911. Mules operation performed, using a glass sphere. There was some re-action for a few days. Sept. 1, 1911, eye was perfectly quiet, no pain, excellent motion, child happy and playing about.

Sept. 10, 1911, "pink eye" in both eyes. Kocks Weak's B. demonstrated. Eyes cleared up under proper treatment.

Oct. 20, 1911, child brought in because mother noticed the lids tightly closed over the bulb of the operated eye. There was a slight edema of the lids and conjunctiva.

Oct. 30, 1911, pain, redness and swelling were so great, I decided, after consultation with Dr. E. S. Strout, to anesthetize the child, and, if necessary to remove the bulb. After the bulb was removed, there was found behind the sclera a tumor involving the nerve. This was removed, and the orbit was completely eviscerated. Dr. Marx White pronounced the growth "small celled sarcoma."

Dec. 16, 1911, I removed a tumor involving orbit, frontal sinus, Antrum of Highmore, paper plate of ethmoid and skin about eye brow. Child died January 24, 1912. Tumor of the orbit returning, liver, spleen, kidney, mesenteric glands, brain and mediastinal glands involved.

610 Donaldson Bldg.

FIXATION FORCEPS.

BY FRANK ALLPORT, M. D., CHICAGO.

ILLUSTRATED.

The cut represents a fixation forceps, especially valuable in cataract extraction, iridectomy, etc. It is small and slender,



and has no catch. The fixation ends are round instead of square, to lessen the liability of tearing the conjunctiva. The inside of the ends have no teeth, but are serrated, which also tends to prevent tearing and laceration. They are made by F. A. Hardy and Company, Chicago.

REPORTS OF SOCIETIES.

ST. LOUIS MEDICAL SOCIETY OPHTHALMIC SECTION, MARCH 5, 1913.

(Concluded.)

Condition of eyes: O. D. V=Nil. O. S. V= 18/19. The temporal side of field, except a small part near the fixation point, is dark. There is interlacing of the red and green color fields. The pupils respond when light is thrown on the seeing part of the left retina. Wernicke reflex sign present. The pupils contract in accommodation. Movements of the globes are normal.

The bitemporal hemianopsia would point to some trouble in the anterior part of the optic commissure, in the region of the Sella Turcica, and pituitary body. Signs and symptoms usually present in tumor of the pituitary body and absent in this case are: Headache, nausea and vomiting, convulsions, vertigo, choked disk and acromegaly.

DISCUSSION. Dr. J. F. Shoemaker: Dr. Gross's patient was seen by me in September, 1906. She had at that time complete bitemporal hemianopsia and stated that the trouble had begun about a year previously. When I first saw her the vision was 18/24 in the right eye and 18/19 in the left, unimproved with lenses. Mercury, potassium iodid and strychnin were tried but did not improve the condition. She was later referred to the clinic at the O'Fallon Dispensary. Several years later I had an x-ray taken of her head which failed to show any evidence of pituitary involvement, the sella turcica appearing entirely normal. Diseases of the pituitary body may cause different symptoms, depending upon whether the secretion of the gland is increased or decreased. When there is hypersecretion the body growth is likely to be stimulated excessively, causing gigantism in the young, and acromegaly in the adult. When the secretion is much diminished there is likely to be a rapid accumulation of fat and a stunting of the growth of the body, particularly of the sexual organs in the young, and in adults causes atrophy of the ovaries and testes resulting in cessation of the menstrual flow in women and impotence in men. The bitemporal hemianopsia in this

case made me suspect a growth involving the pituitary body, but she had none of the symptoms of pituitary disease except the hemianopsia. It is of course possible to have a tumor in this region which does not involve the pituitary body, but which, nevertheless, presses on the optic chiasm. Exception must be taken to the statement that bitemporal hemianopsia can be caused only by disease of the optic chiasm. A growth in front of the chiasm, between the optic nerves could so press against the inner sides of the nerves, without touching the chiasm, as to produce the same ocular symptoms as if the pressure were against the front part of the chiasm. At least one case of this kind has been reported.

Dr. Wiener: I have some interesting charts of bitemporal hemianopsia. The first patient presented himself for treatment early in January, 1911; when he came he was complaining of dimness of vision, the eyes being sensitive to light and suffering from seemingly rather an acute condition. We found his vision to be $1/100$ in the left and $1/300$ in the right. His field showed an almost complete bitemporal hemianopsia. This was taken on the 21st of January, 1911. This patient was treated by Dr. Wolfner and myself and was given a small dose of atoxyl; on Feb. 24th, more than one month later, the fields were again taken and showed a marked increase in size, while his vision had increased to $14/80$ in the right eye, and then on April 29th, 1912, the last time we saw him in the office, the fields were taken again and they were found to be almost normal as here shown. His vision was $14/50$.

The second patient came to the Eye Clinic of the Washington University; his fields were taken on the 8th of January, this year, and showed a bitemporal hemianopsia. This patient was referred to the surgical department, an x-ray was taken and a diagnosis of pituitary tumor was made and a decompression operation was made through the nasal route. These are the fields taken at the hospital. The patient shows marked improvement.

Dr. Gross, in closing: I would only like to say that Dr. Shoemaker's criticism should have been directed at Dr. Spiller as it was Dr. Spiller's statement, taken from Posey and Spiller's book, "The Eye and the Nervous System," that "bitemporal hemianopsia can be caused only by a lesion at the chiasm."

A Protractor for Use with the Single Cell Trial Frame.

Dr. A. E. Ewing, St. Louis, presented a protractor for use with the single cell trial frame which consists of two circles made up of short radiating lines of different lengths to represent the one, five and ten divisions of the circle. The proximal ends of the five and ten degree divisions rest on an imaginary circle which is the size of the outer edge of the 38 mm. ring of the trial lens, while the distal ends of the degree divisions rest on the inner edge of the mounting. For further accuracy in centering the mounting across a vertical and horizontal lines, each 10 mm. long, is placed at the center of each of the circles. The circles are placed 21 mm. apart with their horizontal meridians in the same line and at their upper margin a horizontal dotted line is drawn tangential to both circles. The circles are designated by "R" for right and "L" for left, the latter corresponding to the left eye and the former to the right, as the lenses are worn by the patients.

To employ the diagram with the single cell trial frame, it is only necessary to place the cylinder of the right eye over the right circle, with the edge of the trial lens of the left eye against the tangent of the left circle, and note the position of the usual short marginal guide line, which indicates the axis of the lens, in degree on the circle. For the left eye the lens is placed over the left circle with the edge of the right lens against the tangent of the right circle, and the position of the left lens is similarly noted in degrees. This diagram is printed on the prescription blank for the glasses in order to have it always at hand and ready for use. It has proved to be a rapid, correct and satisfactory method for noting the axis of the cylinder when writing the record of the case, and for indicating it with a pen or pencil mark on a diagram for use of the optician, as it plats the axis of the cylinder or the prism precisely as it is to be worn by the patient.

The conventional angular notation generally adopted in the graduation of circles, as used by Donders, and still in common use by probably the majority of ophthalmologists and opticians, has been retained. As only the 180 degrees are necessary for establishing the axis, the numbers are duplicated in the lower half of the circle in order to facilitate the reading.

DISCUSSION. Dr. Luedde: I recall some of the inci-

dents connected with the making of plano-convex and plano-concave trial lenses with special rings to enable the use of two lenses in a single cell frame, referred to by Dr. Ewing in his discussion preceding the presentation of this prescription blank protractor. The first case made in this way by the American Optical Company was made for me. Its manufacture was the result of a personal visit of Dr. John Green, Sr., at the A. O. Co.'s plant at Southbridge, Mass. Dr. Green selected the material for the rings which were made according to his own diagrams. He further ordered the grinding of the higher lenses in smaller intervals and extended the series, both in sphericals and cylindricals, beyond the limits of cases of this type made in former years by Wall & Ochs. (The latter firm gave up their manufacture because it was not appreciated by the trade and unprofitable). The case was delivered to me in March, 1908, but was returned for the correction of certain defects. Another was secured immediately, however. More recently I secured a supplementary case containing the lenses most frequently used. This latter was furnished at a very moderate cost, so that now this very convenient form of trial lens, whose presence on the market to-day we owe to the efforts of Dr. John Green, can be secured easily. It is a matter of surprise to those who know these cases from personal experience that any one tries to get along with any other type. The ability to place a cylindrical and a spherical lens in a single cell in a way that reproduces, almost perfectly, the single final lens called for by the patient's error of refraction, is an advantage not to be overlooked in difficult cases.

Most of the advantages of the chart submitted to be used in specifying the axis of cylinders, are, I believe, contained in this one which I have been using for two years. In addition, I have provided for the designation of the meridian according to any of three systems in general use, by having two sets of numbers in separate rings at the circumference. First accustomed to the designation of meridians beginning with zero at the horizontal and continuing around to 180 degrees, I have later adhered to the use of the vertical meridian for the standard of comparison as seems natural in the consideration of corneal astigmatism. My own preference is the method devised by Dr. Green, almost fifty years ago, by which the meridians to the right are indicated by the $+$ sign before the

numeral and those to the left are distinguished by the — sign. There is in my experience no confusion with the + and — signs of lenses in this method. However, on my chart the letters N and T, printed on either side at the top, permit the use of the terms nasal or temporal to designate on which side of the vertical the axis should be placed. To determine the axis of a trial lens in a frame, I have always found the large flat protractor, used by Dr. M. H. Post for many years, more accurate than any small disc and equally convenient.

**CONFERENCE OF TEACHERS OF OPHTHAL-
MOLOGY ON
PREPARATION FOR OPHTHALMIC PRACTICE.**

HELD JUNE 15, 1913, AT MINNEAPOLIS, MINN.

Dr. Edward Jackson of Denver, in opening the conference, stated that it was called together by the University of Colorado. When that institution established a course in ophthalmology, requiring at least one year of clinical work that might be taken elsewhere, it was at once compelled to form some estimate of what was being done in this country in the way of post-graduate teaching of this branch. It soon became evident that defects in such teaching existed which might be remedied, and that something might be done toward standardizing the instruction in this branch, if representatives of the various institutions could be brought into conference: therefore the call was issued, and a series of papers arranged, to be followed by general discussion.

The following papers were then read:

How Ophthalmologists Have Prepared Themselves for Practice. Dr. Edward Jackson, Denver.

The Difficulties of Securing Proper Training for Ophthalmic Practice in Medical Colleges as Now Organized. Dr. Frank Allport, Chicago.

Preparation and Needs of Students Seeking Post-Graduate Instruction in Ophthalmology. Dr. A. Edward Davis, New York.

Teaching Pathology of the Eye to Those Preparing for Ophthalmic Practice. Dr. Casey A. Wood, Chicago.

Systematizing and Improving the Teaching of Ophthalmic

mology in Post-Graduate Medical Schools and Eye Hospitals.
Dr. William Zentmayer, Philadelphia.

General Discussion.

HOW OPHTHALMOLOGISTS HAVE PREPARED THEMSELVES FOR PRACTICE.

BY EDWARD JACKSON, M. D., DENVER, COLORADO.

A discussion of how ophthalmologists have prepared themselves for practice may well be introduced by quoting from a letter written by the late Dr. J. L. Thompson, of Indianapolis:

"I was graduated from Rush Medical College in 1860. We then had but little chance to study eye work, but Dr. Holmes gave a talk occasionally, which caused me to purchase what I could procure in the way of books on the eye. (They were but few.) I then went into a general practice, and studied as much as one could without a master. But in May 1863 I entered the volunteer army as assistant and subsequently as surgeon. I again entered private practice in Oct., 1865, when I started in a town near Cincinnati. In 1867 I took private instruction under Dr. Williams of Cincinnati for nearly one year. In 1869 he invited me to accept a position as his private assistant under a salary. In September 1871 I abandoned general practice and located in Indianapolis, where I confined my work to eye and ear. * * * We had no one in the state of Indiana who did special eye and ear work, when I located in Indianapolis, but several physicians did considerable work in that line. I never found one who had prescribed cylindrical lenses."

Dr. Thompson's master, Dr. Elkanah Williams, of Cincinnati, had graduated at Louisville in 1850. After eighteen months in general practice he came back to Louisville for post-graduate work. He then went to Europe, where for two and one-half years he studied under von Graefe, von Arlt, Desmarres, Sichel and others. Returning to Cincinnati he limited his practice to ophthalmology. These sketches show the best methods for preparing for ophthalmic practice fifty years ago. The only other way was self-preparation pure and simple.

In December last I sent to somewhat less than three hundred ophthalmologists in active practice in America, a

circular letter inquiring how they had prepared themselves for ophthalmic practice. Of these two hundred and fifty replied, with data sufficiently definite to furnish the basis of an interesting collective study of the subject. To their exceptionally cordial co-operation the value of this paper is chiefly due.

In a sense exact statistics as to time of study are impossible. Dr. Thompson's interest was aroused when he was an undergraduate student. He procured what books he could and studied them. He undoubtedly studied with even closer attention and more interest, the cases of eye disease that came in his way during his years of general practice. Dr. Williams spending a definite two and one-half years in study in Europe, had gone there to study surgery with a special interest in ophthalmology. He only confined his studies to ophthalmology when he began to appreciate the new era in its development that was then just opening.

The majority of those today engaged in ophthalmic practice in America have started with a general practice of medicine, and have begun the study of ophthalmology gradually; giving more and more time to it as they went on. Even where their whole time was devoted to preparation for special practice, diseases of the ear, nose, and throat, have often shared with the diseases of the eye in their attention. Many have prepared themselves for ophthalmic practice by service as assistant in a public eye clinic, where only a few hours a day, a certain number of days in the week, have been given to this work; along with an indefinite amount of time spent in reading. It must be remembered then that the statistics here offered are compiled under the limitations these conditions impose. Since the time and effort actually devoted to the study is uncertain their significance must be correspondingly indefinite. They are, however, the best data at present obtainable, and may throw as much light on the subject, as it can be expected that statistics will throw on a summary of individual performances, or on mental processes and their average results.

No attempt has been made to estimate the time spent in reading, or in the study of cases seen in private practice. There are other factors, too, that cannot be statistically considered. One prominent eastern ophthalmologist writes: "Teaching, and writing, and original investigation in special fields of ophthalmology, have been especially valuable sources of training to me."

The means of preparation for ophthalmic practice that can be considered in such a collective study have been divided as follows:

(A) Length of time devoted to such study in post-graduate schools, eye clinics, or eye hospitals.

(B) Time spent as an assistant to an ophthalmologist in his private work.

(C) The period as interne in a special hospital.

(D) Service as assistant in an eye clinic; and

(E) The total period occupied by such preparation before fairly engaging in ophthalmic practice.

A. Under this heading has been included time spent as a student in following the work of a teaching ophthalmic clinic, which generally handles both out-patient and house cases. Most of the work done abroad comes under this heading. It includes the eye courses given in the post-graduate medical schools of this country; or in such distinctly teaching institutions as the Ophthalmic and Aural Institute established in New York, by Dr. Knapp; or the Wills Eye Hospital in Philadelphia, by the terms of its foundation open to all practitioners and students of medicine.

The educational value of this work varies most widely. It may include the close and repeated personal study of patients under the guidance of highly skilled instructors, the thorough working out of the case, and its discussion with related conditions. Or, it may mean simply standing or sitting in a group of a dozen or more to watch an ophthalmic surgeon, who has little interest or skill in teaching, pass in review in routine manner, large number of patients about whom only the name of the condition, and a few of its most obvious characteristics are mentioned.

Just about half of the ophthalmologists whose replies are made the basis of this paper did a part or the whole of their post-graduate clinical work in Europe. Doubtless, as a rule, the opportunities offered there have been better than the clinical opportunities offered in this country. Yet there are many circumstances to offset these advantages. The earnest qualified student had the opportunity to do good work: the young man who was out for prestige and a good time, was under no compulsion of any kind whatever to make the most of such opportunities.

The opportunities for post-graduate study in America have steadily improved since the first schools devoted strictly to post-graduate teaching were opened thirty years ago. It is believed that by correcting certain now obvious defects, and arranging for more systematic work, the facilities for the clinical study of ophthalmology can be made as good in the United States as anywhere in the world. Of the 250 it appears that 218, or 87.2% did some work of this character. When we remember that a certain proportion of these prepared themselves for ophthalmic practice before post-graduate schools had been organized in this country, it is seen that such teaching affords a very large part of the opportunity for such students.

B. Work as Assistant in the Private Practice of an Ophthalmologist.

Of the 250 who reported, 116, or 46.4%, mentioned such work as an important part of their preparation for ophthalmic practice. Its educational value must depend, like all other teaching, largely upon the enthusiasm, thoroughness and scientific attainments of the teacher. For Dr. Thompson, studying under Dr. Williams, the opportunity was almost ideal. Even with a preceptor of quite inferior talents there is always a good deal of opportunity for individual study of cases, and a good deal of inducement to do earnest thorough work. Without mentioning the names of living ophthalmologists, it is known to many of us that from a dozen or more private offices in this country men have been sent out, and are still being sent out, well prepared for ophthalmic practice. The opportunities here afforded in certain directions, as in the measurement of refraction, can hardly be equalled in any public clinic. The best educational work has been done in those private offices that require the student to continue in this service from one to five years. But because this kind of work depends so largely on the methods and characteristics of single individuals, it especially needs to be supplemented by some form of public teaching or work in a large clinic.

C. Service as Interne in an Ophthalmic Hospital.

This was taken by 63, or 25.2% of the ophthalmologists replying to my inquiry. The number of positions of the kind open to students in this country is still quite limited. In a few general hospitals an interne may be assigned for a

certain period to wards in which only ophthalmic conditions are treated; and for the length of such assignment may be regarded as having the same opportunities as would be offered in an eye hospital. But where a special hospital has a large out-patient service in which the interne has the opportunity to assist, it offers probably the very best opportunity to prepare for ophthalmic practice. The continuous observation of the most serious cases there is an opportunity that is lacking in most arrangements for post-graduate teaching, and limited in the work of an assistant in private practice. One prominent New York surgeon, with a large experience in training men for ophthalmic practice considers "two years in a good ophthalmic hospital worth at least five years abroad"; and a similar estimate is made by another ophthalmologist, who has made good use of large opportunities in the European teaching centers. Almost without exception large ophthalmic hospitals are teaching institutions, and on that account offer better educational opportunities to the interne than many of the large general hospitals, in which the influence of the teaching spirit is little or not at all felt.

D. Service as Assistant in an Eye Clinic.

This has been a part of the training of 168 (67.2 per cent) of the 250 who responded, and a very important part of the training for a large proportion of the men who now occupy leading professional positions in our principal medical centers. Except in a few of the European clinics, such positions have been available chiefly for those who reside in or near the city where the clinic was conducted. Such assistantship takes but a portion of the day, and sometimes only two or three days in the week. It must be held over a long period to yield the best results, and is quite compatible with the conduct of other lines of medical practice. Only to a limited extent is it available for the non-resident, who gives up his work for a limited term to devote his whole attention to ophthalmology. Something may be done to render it more available to a larger number of students. But its value is limited by the character of the clinical chief, and the danger of routine, where large numbers of patients are seen by an insufficient or poorly organized staff.

E. The period that different men have regarded as necessary to devote chiefly or wholly to preparation for ophthalmic practice varies widely. Not so widely perhaps as the re-

ports would indicate—these varying from six weeks, to ten years. Still it varies within wide limits and is necessarily quite indefinite. Some in answering the question have indicated the total length of service as assistant before receiving the appointment of hospital surgeon. Some have not made any attempt to indicate the total length of studies, others have only mentioned the time before they first undertook to treat patients with eye diseases, although a large and important part of their training was secured subsequently. In some cases it has been necessary to arrive at the total by adding together the periods which were spent in different places, or in other ways showed they could not run coincidently.

The figures arrived at in this way show on the average just about three years devoted to preparation for ophthalmic practice. In some cases as much as five or even seven years have been given to the learning of ophthalmology and related subjects. But in most cases the three years estimated as spent in preparation have not been exclusively given to the study of ophthalmology; often the study of diseases of the ear, nose and throat has been carried on coincidently. Often a portion of the time has been devoted to the continuance of a general practice. No one has secured a complete, well-rounded education in ophthalmology in three years. The training of the master continues throughout his professional life. But it seems fair to state that with such assistance and opportunities as he was able to command the average successful American ophthalmologist has prepared himself to enter upon ophthalmic practice in an average of less than three years, actually applied to this object.

Summary (1). The successful ophthalmologist in America has, without exception, recognized the necessity for special formal preparation for ophthalmic practice, in addition to the training given for general medical practice in our undergraduate medical schools; and that the time given to such supplementary training should be one or more years.

(2). The opportunities of interneship in an ophthalmic hospital; or assistantship in an eye clinic, or in the private practice of a competent teacher, are educational opportunities of high value, but not universally available.

(3). That periods of study in institutions giving formal postgraduate teaching in Ophthalmology, have been the most

widely open and most generally used of opportunities for preparation for ophthalmic practice. The facilities for study and clinical experience that such institutions afford are therefore worthy of every improvement and extension.

THE DIFFICULTIES OF SECURING PROPER TRAINING FOR OPHTHALMIC PRACTICE IN MEDICAL COLLEGES AS NOW ORGANIZED.

BY FRANK ALLPORT, M. D., CHICAGO, ILL.

I have been requested to say something on "The Difficulties of Securing Proper Training for Ophthalmic Practice in Medical Colleges as Now Organized," and in agreeing to accept this invitation I fully realize that, in a short paper like this, it is quite impossible to do more than merely generalize on this important and unsettled subject.

At the outset, it may be openly questioned whether there is a single Undergraduate Medical College in the United States that affords a good and comprehensive education in ophthalmology. If proof is necessary as to the appropriateness of this query, I was told recently by a faithful and studious graduate of one of the most prominent medical schools in the west, that he had never used an ophthalmoscope or retinoscope, and had never been taught anything of fundus appearances or refraction. Further than this he said that his alleged education in ophthalmology and otology was a dreary and dismal farce, amounting to nothing more than a hypocritical pretense. We have all heard innumerable reports of this kind, and we know that these opinions are certainly worth our serious consideration.

Some colleges, it is true, are more conscientious along these lines than others, but I know of no college, where the education in ophthalmology is what it should be to enable a man to be safely consulted in even simple ocular diseases.

The study of this important department of medicine is not taken seriously in medical schools, and is, usually, disposed of as easily as possible by all parties concerned. It seems to be assumed from the start that medical men, as a rule, do not intend to do even simple ophthalmological work; but that if they do they must expect to learn even the rudiments of this science in some form of postgraduate instruction. Under these circumstances it would seem as if ophthalmology might as

well be eliminated entirely from the curriculum of medical schools, for the education received in this department is, usually, so utterly inadequate as to be almost useless. If the function of medical colleges is mostly to educate men in anatomy, physiology, chemistry, bacteriology, surgery, obstetrics, etc., this fact might as well be understood; and separate colleges or institutions be established for instruction in such unimportant (?) branches as ophthalmology, otology and rhino-laryngology.

I do not wish to be understood as making statements that are too sweeping, and I am cognizant of the fact that there are many professors of ophthalmology who are striving to establish and maintain good ophthalmological courses in their colleges, but such efforts in most instances are not crowned with success because college authorities are not in sympathy with adequate ophthalmological instruction in under-graduate institutions. Let me give you a concrete instance of the truth of this statement.

There were two men in a certain city who were asked to fill the chairs of ophthalmology and otology in one of the most important medical schools of the United States. These gentlemen had occupied professorial chairs before, and took no interest in teaching these specialties in the perfunctory manner usually pursued in medical colleges. Besides this they were too busy to give up their time and strength for the perpetuation of what seemed to them to be an addition to the farcical teaching of these branches of medicine, as usually employed in the medical schools of this country. They therefore told the president and dean that they would only accept these chairs with the distinct understanding, that they could carry out their ideals, and have the unmolested privilege of teaching ophthalmology and otology, as they thought best.

These views were unfolded to the college authorities, heartily commended by them, and the work was begun. Each of these men delivered a didactic lecture once a week. These resolved themselves into interesting quizzes on carefully prepared subjects. Two operative clinics a week were held for small classes, at which all kinds of eye and ear surgery was performed. The students were required to perform simple operations themselves under strict supervision. The dispensary was open every afternoon and was attended by small classes. There were plenty

of clinical assistants who personally instructed the students as to examinations, normal and abnormal appearances, etc., etc. The students were required to examine cases, to use the ophthalmoscope and tell what they saw. They used the retinoscope, they refracted patients and treated them, learned how to take histories, examined ears, introduced Eustachian catheters, washed out cerumen, dressed cases after mastoid operations, etc., etc.; in short, they were brought into personal contact with patients and were practically taught how to perform, at least, simple work and how to be safely trusted with eye and ear cases.

Clinical instruction is what medical students desire and need, particularly in the highly specialized branches. A little didactic teaching is admissible, but students need to be brought into personal contact with cases under the auspices of an enthusiastic and sympathetic instructor. One case well and thoroughly studied with particular reference to diagnosis, is better than a dozen superficially observed. A small pathological laboratory was established, with a paid teacher in charge. He taught small classes in eye and ear pathology, microscopy, bacteriology, etc., and had them do this kind of work themselves under his personal supervision. A small anatomical room was opened under the charge of an enthusiastic specialist, where eye, and ear, and head dissections were made; where eye and ear operations on the cadaver were performed; where eye operations were demonstrated on pigs' eyes, etc., etc.

A college eye and ear society was formed to teach the students to observe, think, write and talk intelligently. This society met four times a year and the meetings were always enthusiastically attended and were marked with good papers, and animated and intelligent discussions. Believing that post-graduate schools; and reach the point where such instruction superficial performance usually enacted at independent post-graduate schools; and reach the point where such instruction will be thoroughly and satisfactorily given under the auspices of our universities, these two pioneer and optimistic professors undertook to do a little post-graduate work in their departments, with the full consent and approval of the officers of the institution. The idea was thoughtfully considered, and worked out as follows:

1. Post-graduate teaching should in no way interfere with the efficiency of the under-graduate teaching.

2. Only four post-graduate students should be taught at a time, and their instruction should be the same as that offered the under-graduates.

3. No post-graduate should be admitted, unless he agreed to stay six months and paid three hundred dollars in advance as an evidence of his good faith.

4. Of this three hundred dollars, seventy-five dollars were to go to the teacher of pathology, etc., and seventy-five dollars to the teacher of anatomy, etc., and one hundred and fifty dollars to the college, to be set aside as a fund to be drawn upon from time to time for purposes deemed necessary for the good of the department.

The little post-graduate department, it may be said in passing, was successful in attendance and results from the start, and undoubtedly would have developed into something of an ideal character had its work remained unmolested. The heads of the department called meetings of their associates once a month, where topics of interest to the department were discussed and settled. Once a year the heads of the departments gave a dinner to their associates, at which the president of the university and the dean of the medical school were present, and was found that these meetings and dinners were of great assistance to the departments in their work and in promoting good fellowship and enthusiasm amongst the various teachers. At one of these banquets, in an after-dinner speech, the dean said with much enthusiasm, that the eye and ear departments were the best in the school, that they were models of their kind and that he wished the other departments would pattern after them; a sentiment which was echoed by the president of the university.

This was the work carried on by these two gentlemen, who were endeavoring to inaugurate something of an ideal and unusual character, and who were distinctly succeeding in their labors in that they were actually turning out men who were intelligent on ophthalmological and otological subjects, and were not skimming over these topics in as cursory and perfunctory a manner as possible, as is done by most medical colleges today. This work was carried on with increasing efficiency and enthusiasm and with frequent commendatory encoiumms from the president, dean, and members of the trustees; when, like lightning out of a clear sky, these two professors

were informed that all post-graduate teaching must cease, and that the teaching of the under-graduates in ophthalmology and otology must be diminished, as too much time was being devoted to these departments. In other words, these gentlemen were practically notified that the instruction in their departments was of too superior a quality, and that it was the desire of the authorities that the eye and ear teaching of the school should drop back into the perfunctory and negative groove it had always occupied.

The two professors told the authorities that they had accepted these chairs on the distinct understanding that they should be allowed and encouraged to endeavor to establish a new era in ophthalmological and otological teaching, and to do something that was distinctly worth while, that their ideas had been explained to and accepted by the authorities, that the work had been successfully and highly and frequently commended by the president and dean, but that inasmuch as the advisability of such advanced work was no longer entertained by their superior officers, and that they would be obliged to sacrifice their ideals of teaching by remaining in the institution, and to sink back into the negative and colorless atmosphere surrounding most ophthalmological and otological chairs, that they preferred to give up the work entirely, and to devote themselves to other and more satisfactory labors. They therefore resigned and their resignations were accepted. Thus ended an honest and faithful effort at adequate eye and ear instruction in an under-graduate medical college, and I am inclined to think that the same unfortunate ending might have occurred in almost any college in this country.

The fact is, that ophthalmology is regarded as a highly specialized specialty, in which the general student and practitioner has but little interest. Nevertheless, the eye is a part of the body and must be studied (if only a little) in order to complete a medical education. Therefore ophthalmological chairs are established in all medical schools, but it is well understood that the teachers in this department are not expected to rob the medical student of much of his time, in pursuit of this subject. I am well assured that most professors of ophthalmology in this country would, if encouraged, give a thoroughly satisfactory course in this department. But their hours are so restricted as to make this procedure impossible—the au-

thorities do not want; and if this is true adequate instruction is impossible until the authorities are properly converted.

I desire to protest against these views, and against the insignificant position occupied by ophthalmology, otology, etc., in most medical colleges. I do not advocate the education of any kind of specialism in under-graduate schools, but I do advocate that these departments should be raised to the same level as those that are usually regarded as more important. Medical schools should turn out well-rounded physicians, not men who are educated in one department at the expense of another department. The new graduate should have been taught those things that a doctor is liable to meet in his daily rounds, rather than those diseases and conditions which would puzzle the specialist. He should know how far he could safely go in the treatment of a case—and when the services of a skillful specialist must be sought in order to do justice to the patient. If, after emerging from his college, as a well-rounded and well-balanced beginner in the practice of medicine and surgery, he desired to specialize in any particular department he should go where such opportunities may be obtained; and here he is, of course, confronted with the chaotic and inadequate condition of post-graduate instruction in this country, a phase of this symposium, which it is not for me to discuss. I wish to say, however, that it is my opinion that no man should become a specialist, who has not first had ample experience as a general practitioner, or had one or two years of actual experience as an interne in a general hospital. Specialism *should be* an outgrowth from general medicine.

PREPARATION AND NEEDS OF STUDENTS SEEKING POST GRADUATE INSTRUCTION IN OPHTHALMOLOGY.

BY A. EDWARD DAVIS, M. D., NEW YORK CITY.

To commence at the beginning, the first requisite of a student seeking post-graduate instruction in ophthalmology is that he possess a reasonably adequate academic education—a college education if possible, (which is always desirable); but nothing less than a degree from a high school or an academy in which the higher branches of mathematics (algebra, geometry, trigonometry and physics) are taught, should entitle a student to even begin the study of ophthalmology. Aside from maintaining the tradition (I came near saying the fact) that

the medical profession is one of the learned professions, it is absolutely necessary for the student to have a proper understanding of these branches of mathematics, to-wit: algebra, geometry, trigonometry and physics, if he expects to grasp and have an adequate working knowledge of physiologic optics. Without this information he cannot hope to practice ophthalmology in a scientific or highly successful manner.

An adequate preliminary academic education, we see therefore, is the first essential need of a student seeking instruction in the study of ophthalmology.

The *second* essential need of a student seeking instruction in ophthalmology is a thorough training in general medicine. A knowledge of anatomy, physiology, histology, pathology, etc., should be obtained in the undergraduate medical schools; while the art and science of diagnosis and treatment must be gained as an interne in some general hospital, or by some years of private practice. And, the doctor contemplating ophthalmology as a specialty, should make a special study of the histologic and pathologic anatomy of the eye, together with its physiologic functions. He should likewise make himself thoroughly familiar with the relation and correlation of ocular and general diseases.

In America, if may be pardoned for saying so, the one lamentably weak point in the training of students for the specialty of ophthalmology is the lack of facilities for teaching and demonstrating histologic and pathologic conditions of the eye, and showing the intimate connection that obtains between general diseases and ocular affections. In other words, we fail to lay a proper foundation for the study of ophthalmology.

Furthermore, I do not concur entirely with Dr. Walter Lancaster, who has written extensively on this subject, when he states that, "physiologic optics is the most important department of ophthalmology, because it is, on the one hand, to this that most of our time is devoted in our daily office practice, and because it is the one distinguishing feature which characterizes ophthalmology and which we do not share with other sections, as we share anatomy, general physiology, pathology, materia medica, etc." While I do not undervalue the importance of a working knowledge of physiologic optics as a factor in the successful practice of ophthalmology, more men fail, I

believe, from a lack of knowledge of pathologic conditions of the eye, and especially from the lack of a true appreciation of the intimate connection between diseases of the eye and the general bodily ailments; than those who fail from a faulty understanding of physiologic optics. First of all, we should be doctors, and after that, through the acquirement of additional and special knowledge, become specialists.

As Dr. Edward Jackson so aptly put it, specialization should be an expanding and not a narrowing process. To put it in another way, the specialist should be something more and not something less than a doctor. The "something less than a doctor" in the practice of the specialty of ophthalmology in this country, has its representation in the optometrist; which something, to the disgrace of America medicine, be it said, has been legalized by a number of state legislatures. Here is a class of gentlemen that claim that a knowledge of physiologic optics is all that is necessary in order to properly practice an important branch (the fitting of glasses) in the specialty of ophthalmology. But, as I have already stated above, this is not the most essential requirement for the practice of ophthalmology. A thorough knowledge of medicine is the most essential qualification, and without this no man should be permitted to practice any branch or part of a branch of ophthalmology. It would be just as sensible to allow an instrument maker to adjust braces to a crippled child without the direction and advice of an orthopedic surgeon.

Physiologic optics, that branch of ophthalmology, which deals with ocular dioptries, errors of refraction and accommodation; functions of the retina, color sense, light sense, form sense, etc.; the ocular movements and binocular vision; should receive special consideration when preparing students for the study of ophthalmology. Carl Weiland, in the preface to the translation of that classical book of Tscherning's on Physiologic Optics, states the subject fairly when he says: "Physiologic Optics is a science which, on the one side, touches the highest philosophic problems of the human mind and, on the other side, keeps in intimate contact with the practical work of the ophthalmologist, who, in his daily work of refraction, can be guided safely only by its principles. Many are the textbooks on this important subject. Some are mere compilations of older facts and some are written by men that soar so high

above the field of the practical work of the ophthalmologist that their abstract scientific investigations lose almost all contact with these practical workers."

Dr. Lancaster in his excellent paper on this subject to be read before the section of ophthalmology at this session, has suggested a practical way of teaching this part of the subject, that is, that the laboratory and the practical or clinical sides should be carried along together and not have one instructor to deal wholly with the scientific and theoretical side of the question and another with the strictly practical part of the subject. In this view, I think he is entirely correct. It is the method we carry out at the New York Post Graduate Medical School and Hospital to a great extent. That is, the instructor gives about half his time to didactic lectures and the other half to clinical demonstrations, where it can be done, of the points brought out in the lecture. Unfortunately, in this country, in most of our post-graduate schools, we are compelled to teach mixed classes, that is, some men who want only a superficial knowledge of physiologic optics, and to recognize the commoner, external diseases of the eye; while in the same class there are others who wish to take a thorough and complete course. The best solution of the question in my opinion is to give a *Specialist course*, of at least six months to a year's duration, and to issue a certificate of proficiency or a diploma, after the student has passed a satisfactory examination.

I am appending an outline of the course given at the New York Post-Graduate School and Hospital.

The schedule of hours, weekly, is as follows:

First.—Refraction, 18 hours.

Second.—Clinical lectures, 6 hours.

Third.—General medicine as related to the eye, 2 hours.

Fourth.—Neuro-pathology of the eye, 2 hours.

Fifth.—Anatomy and physiology of the eye, 2 hours.

Total weekly hours, 33.

Special courses are given in:

First.—Pathologic anatomy of the eye.

Second.—Radiography of the accessory sinuses and the localization of foreign bodies in the eye, hours to suit.

Third.—Operations on the cadaver to special classes.

Fourth.—In addition to this, the professors give operative clinics on the living, three hours a week.

The instruction consists of daily clinics for the teaching of diseases of the eye by didactic exposition and clinical demonstration. A regular curriculum is followed by the professors, covering a period of three months, beginning on October 1st, January 1st, April 1st and July 1st. A matriculate may enter upon the work, however, at any time. A course of lectures on ophthalmology, general medicine, and on the anatomy and physiology of the eye is given throughout the term.

Refraction is taught by a special department. Three hours each day are devoted to this work, and the theoretical and practical uses of the ophthalmoscope, ophthalmometer and retinoscope are demonstrated. The reflectoscope is used for illustrating the rarer conditions of the fundus.

Operative surgery of the eye includes all the important operative procedures of the eye. It is so arranged as not only to teach specific operations but at the same time demonstrate the surgical principles on which such operations are founded.

Every operation will be performed by each matriculate, and with the same care as should be given when operating on the living subject. Much time is given to the technique of the various operations; also the preparation of the patient for the operation, and after treatment of the cases receive due attention.

Classes are limited to two matriculates and are formed between October 1st and May 1st as the demand necessitates.

A course in pathological anatomy of the eye will be given. Class limited to two.

TEACHING OF PATHOLOGY TO STUDENTS OF OPHTHALMOLOGY.

BY CASEY A. WOOD, M. D., CHICAGO, ILL.

This paper is intended to cover briefly the writer's ideas on the teaching of pathology and morbid anatomy, both to the undergraduate and the post-graduate student of ophthalmology. These opinions are the outcome, chiefly, of an experience as former head of the department of ophthalmology in Northwestern University, where an attempt was made to furnish ordinary graduates in medicine with such knowledge of this special subject as, in the judgment of the writer, every educated physician should possess. It was intended, also, to lay a foundation in pathology upon which post-graduates intend-

ing to practice ophthalmology as a specialty might later on build a secure and profitable superstructure of ophthalmic information.

Let us first consider the *undergraduate student* in medicine. It matters not what career the student selects, it is a mere platitude to say that he ought to be well equipped with a knowledge of general pathology, and it is assumed, as a preface to these remarks, that such a program forms no small part of his college curriculum. An intimate acquaintance with the dissecting room, the dead house, the pathological laboratory and the college museum should go hand in hand with definite bacteriological studies, blood examination and other biochemical investigations. These investigations form the *sine qua non* of ophthalmology just as surely as they are indispensable to a rational study of general surgery or internal medicine. However, it ought also to be the duty of the head of the department of ophthalmology in a medical school to see that the special pathology of the ocular apparatus is not forgotten during these student days. The time set apart for the study of ophthalmology as a whole is never too long in any collegiate syllabus with which the speaker is acquainted, and it behooves us to make the most of it.

First of all it is the writer's conviction that ocular pathology should be taught in every instance by a trained specialist and not by a general pathologist. However experienced the teacher of general pathology and however valuable may be his advice and assistance as an organizer and director of the department as a whole, he is frequently "weak" in the special pathology of the eye. Indeed, the head pathologist in most colleges recognizes this fact, and is generally quite willing to turn over the teaching of ocular pathology to a specially trained assistant, and to act, in his capacity as head of the department, as chief consultant when called upon for an opinion in certain cases of doubtful import.

For this reason and many others the co-operation of the chief pathologist is desirable always, and may often be essential in carrying out a scheme of special instruction.

The specially trained teacher should give at least two separate and distinct courses, differing from each other not so much in quality as in degree—a minor and, perhaps elective course for ordinary undergraduates, and a more extensive one,

not only for post-graduates, but for those undergraduate students who, early knowing their own minds, are deliberately preparing themselves several years in advance of graduation, for a career in ophthalmology.

The time and occasion of the minor course will have to be decided by local condition, but in Northwestern *small classes* of senior undergraduates had laboratory work and quizzes on ocular pathology once a week, especially in bacteriology, selected microscopical sections, gelatine preparation of the eye, ocular tumors, etc. The writer was able to make a large and varied collection of gelatine and other preparations of the ocular tissues and to show by use of these prepared eyes, the alterations that accompany most of the ordinary diseases of the eye.

In conjunction with these demonstrations, the student studied clinical, (i. e., by inspection, the use of the ophthalmoscope, perimeter, etc.) examples of the same disease in the dispensary. He also made examinations of discharges from the eye and became familiar with the usual laboratory tests for such pathogenic bacteria as are most frequently found in the conjunctival sac—all of which were demonstrated to the small groups of students aforementioned in the usual weekly or bi-weekly lessons. In this way every graduate acquired at least a fair idea of the pathological relations of the commoner disease of the eye, instructions, which it is believed, every doctor should possess.

There was little didactic teaching of pathology or any other ophthalmology done in Northwestern during the writer's incumbency, most of it being clinical and done in and to small classes. When lectures were given to the whole class, they were mostly talks illustrated by patients, stereopticon pictures, the projection apparatus and by means of microscopical slides. The last named proved to be a valuable help in teaching certain phases of ocular pathology and particularly in reviewing the work of the previous month, by respecting and reiterating the observations made in the laboratory.

Post-graduate teaching in ophthalmology, so far as it concerns pathology, is a highly specialized form of medical pedagogy. While an acquaintance with pathology in general is a necessary introduction to it, yet a regular and continuous investigation of gross and microscopical preparations and a study

of the ocular secretions (including the literature of the subject) under a trained specialist, extending over, at least, a year is needed to give the advanced student a fair grasp of this important branch of medical knowledge. Indeed, such a course might with strict truth be called an *introduction* to the study of ocular pathology. If there is any doubt on that subject one may point to the best work we possess in English on the subject in question; viz., Herbert Parson's Pathology of the Eye; the contents of those volumes are not to be mastered merely by a few months' study of them.

Again, while the teaching in the minor courses can be arranged for *hour periods*, because they partake of character of *demonstrations*, the post-graduate and special student ought to spend at least two hours at a time in laboratory work, most of which should be performed by himself under the supervision and with the advice of the instructor. The hardening, imbedding, cutting and staining of sections, the preparation and preservation of gross specimens, the bacteriological and other investigations, as well as the literary study connected with these subjects, require sustained uninterrupted work, which cannot be properly taken up and put down for a few minutes at a time. As the proportion of undergraduate to special workers is necessarily large, the comparatively few students doing advanced work can easily be accommodated in the special ophthalmic laboratory and, generally, at such times as groups of undergraduates are not receiving instruction.

To be more specific as to the actual time proper to these studies, while the exigencies of the general curriculum must necessarily influence the exact number of hours that it is possible to devote to the investigation of ocular pathology in a particular medical school, there should not, during the scholastic year, be less than twenty laboratory demonstrations for ordinary undergraduate students. Advanced or special undergraduate courses, on the other hand, require at least twenty-five laboratory periods of two hours each, while post-graduate students may well devote to this work not only these fifty hours but as many more as the time at their disposal will permit.

There is one extremely important consideration which is often overlooked in the teaching of ocular pathology, both simple and advanced, and that is instructions in the *normal histology* of the eye. So essential is this study to any intelligent

conception of modern pathology and so poorly and inadequately is it taught in some medical schools that in the program followed in Northwestern it was given and pursued in conjunction with pathological anatomy. There is no more effective safeguard against the acceptance of irrational views in pathology, and no surer guide to the truth in morbid anatomy than a thorough knowledge of the minute structures composing the ocular apparatus. It is the duty, therefore, of the head of the department to institute such studies and to see that they are strictly followed.

Finally, it is true that as an adjunct of departmental teaching, the employment of a special and adequately paid anatomist and pathologist, whose time will be fully occupied in carrying out the details of the scheme just set forth, constitutes an addition to the expense budget of the medical faculty. On the other hand, the day when the well-equipped medical school was self-supporting—or something more—has gone by. The writer is not advocating a *cheap* course in ophthalmology but he believes a *better and more efficient* one, that will redound both to the credit of the institution that gives and the student who receives the instruction in question.

SYSTEMATIZING AND IMPROVING THE TEACHING OF OPHTHALMOLOGY IN POST-GRADUATE MEDICAL SCHOOLS AND EYE HOSPITALS.

BY WILLIAM ZENTMAYER, M. D., PHILADELPHIA, PA.

To formulate a plan for improving the teaching of ophthalmology in post-graduate schools and hospitals requires a familiarity with the present curricula of the various schools engaged in such work not possessed by me. I am prepared, however, to convey to you the judgment of a successful post-graduate school as to what has brought this success; and wherein, in their opinion, the present course falls short. The great difficulty that a post-graduate school has to contend against is the fact that its students being recruited from the body of general practitioners, are compelled to adopt a course of too few hours to cover the subject in such a manner as to properly equip them to specialize. The majority of these men have well established practices and many have families and are therefore compelled to economize not only in time but in money. Many of them realize that the time has been insufficient and some rematriculate.

This suggests that the proper place to lay the foundation for this knowledge is in the undergraduate schools. The necessary studies being elective at the expense, but not to the elimination of such other subjects as have the fewest points of contact with the chosen specialty. However, if a specialty must be acquired in toto post-graduate, then the curriculum should be standardized and a minimum number of hours established and subscribed to by all such schools. If the first plan be adopted then we believe that the final year in the undergraduate course should be given over to the elective special work; and that a second year should be taken in a post-graduate school having a curriculum modified from that later to be outlined to meet this preliminary training. For the second plan we believe that a minimum number of hours should be 1400, that is, 39 week of 36 hours each. In as much as this question is under consideration by both the American Medical Association and the American Ophthalmological Society, for the present, we favor a four months' course.

The work of the four months to be divided as follows: The first four weeks to be devoted to a preliminary course on physiologic optics, embryology, anatomy of the eye and its cerebral connections, histology and bacteriology and to the demonstration of the use of the ophthalmoscope, oblique illumination, perimetry, tonometry, method of taking vision and accommodation and such other special methods of examination as will fit the student for the clinical part of the regular course. Two hours a day devoted to each of these subjects would make a total of 6 hours a day (36 hours a week) with a total of 144 hours devoted to preliminary work. The last 3 months would be devoted to the teaching of our regular 3 months' course which is systematized as follows:

36 Hours—Refraction.

Three lectures a week on General Optical Principles, Refraction and Retinoscopy, Direct and Indirect Methods of Observation, and the Ophthalmoscope as a Means of Measuring Ametropia.

36 Hours—Practical Work in Refraction.

Students receive thorough instruction and drill in refraction, the use of the ophthalmoscope, etc. Individual instruction to the class daily for 1 hour, patients being specially referred for that purpose from the various eye dispensaries.

The student is thoroughly drilled in the actual work of refracting and prescribing glasses, besides the didactic instruction in the principles of refraction.

External Ophthalmology.

Twelve lecture hours on the following subjects: General Examination of Patients, History Taking and External Examination of the Eye (one lecture); Diseases of the Lids (one lecture); Conjunctiva (two lectures); Cornea and Sclera (two lectures); Iris and Ciliary Body (two lectures); Lens (two lectures); Lachrymal Apparatus and Orbit (one lecture); Color Vision and Color Blindness (one lecture).

12 Hours—Wounds and Injuries.

Wounds and Injuries of the Eyeball and its Appendages; Injuries of the Eye by Heat and Chemicals, Non-Penetrating Wounds and Injuries; Penetrating Wounds; Injuries by Foreign Bodies; Enucleation and its Substitute Operations; Glass Eyes; The Diagnosis of Foreign Bodies in the Eye by the X-Rays. The Use of the Magnet in Extracting Foreign Bodies.

12 Hours—Operative Ophthalmology.

Demonstration on animals' eyes and on the cadaver. The entire field of operative ophthalmology is covered during each half of the course (six weeks), and the student is given an opportunity to preform the various operations under the personal supervision of the instructors.

12 Hours—Anomalies of the Ocular Muscles.

On the following subjects: Anomalies of the Ocular Muscles, viz.: Anatomy and Physiology; Law of Projection; Accommodation and convergence (three lectures); Ocular Pal-sies (three lectures); Functional Derangements, Heterophoria (three lectures); Heterotropia (three lectures); Ophthalmometry.

12 Hours—Ophthalmoscopic Diseases.

Diseases of the Vitreous; Diseases of the Choroid; Diseases of the Retina; Diseases of the Optic Nerve; Glaucoma; The Eye in Relation to General Diseases; Amblyopia, Amauro-sis, and Disturbances of Vision without Ophthalmoscopic Changes.

6 Hours—The Pupil.

On The Pupil in Health and in Disease; Normal Reaction of the Pupil and the Significance of Deviations in its Size and Movements.

6 Hours—Perimetry.

Demonstrations of the methods of determining and recording the Visual Field, and the general significance of Alterations in the Visual Field.

6 Hours—Ocular Therapeutics.

Embryology, Congenital Anomalies, Conservation of Vision and Prevention of Blindness, Ocular Manifestations of Hysteria, Bacteriology, Histology and Histologic Technic Operation and class every afternoon 1 to 2 hours.

While realizing that the major part of an ophthalmic practice consists in solving problems of errors of refraction and muscle balance we do not attach as much importance to a thorough knowledge of physiologic optics as has been given to it by some who have recently written upon this subject. Many of these problems can be solved only by born mathematicians and few of those who have had the advantage of a college education have received sufficient training in mathematics to follow the formulae in such works as Donder's and Helmholtz's. To us it seems more essential that only elementary problems be taught but that these be taught thoroughly. Of more practical worth is a knowledge of applied optics. Dr. Thorington is of the opinion that from 36 to 72 hours should be allotted to the teaching of physiological optics.

In our estimation the value of didactic teaching cannot be gainsaid. In no other way can the student receive a satisfactory visualized description of the disease picture. Further it compels attention to a necessity the acquisition of which from books, if left to the student would surely be neglected. Moreover the lecturer has absorbed the material for his lectures from many sources and in this way the student has presented to him in a concise way what the seasoned judgment of his teacher knows to be sound and authentic. By the aid of the projectoscope such lectures can now be profusely illustrated.

In our opinion quizzes hold a legitimate place in the curriculum. They further impress upon the minds of the students the points brought out in the lectures and give an indication to the lecturer of the progress of the student.

The student should be taught to give a verbal description and to make a rough sketch of the conditions met with.

We would urge that the teaching of ophthalmology be divorced from that of the nose and throat. When such courses are combined the roster is a compromise out of which both sides suffer. The relation which exists between the eye and the nose and throat can better be taught by the ophthalmologist if this be the excuse for their association; whereas if it is the intention to have the student qualify in both specialties it can be done to the advantage of both by giving separate and distinct courses.

We feel that no certified acknowledgment of attendance shall be given for less than 3 months; that only a *certificate of attendance* should be given for attendance on any course of less than one year; and that a diploma might be given for a full year course, provided that the candidate pass a satisfactory examination at the end of the term. For the present we shall compromise by giving a *certificate of attendance* upon a 3 months' course, and where the student submits to and satisfactorily passes an examination, a *special certificate* setting forth this fact. In the matter of examination for degrees Dr. Reber suggests the formation of a committee made up from the various post-graduate schools (not more than one member from any one school to be on the committee) which shall set the questions and forward them to the various institutions.

Dr. Reber believes that anyone who can show that he has done satisfactory work in a recognized ophthalmic clinic for 3 years should be entitled to take the same examination that is set for those who take the regular post-graduate school course and if he qualifies that he receive the same recognition accorded graduates.

What is to be done regarding men who have purchased a course of ophthalmology in a foreign clinic or school?

GENERAL DISCUSSION.

Dr. Hiram Woods, Baltimore: I expect to take up in my address to-morrow some of the points elicited here to-night, and I do not want to anticipate too greatly what I shall say at that time. I have replies to a questionair sent to schools in Class A+ and Class A. It seems to me that there is a very general desire on the part of our best schools to reorganize the course in ophthalmology. Practically all of the schools in these classes claim that they give adequate instruction in

what might be called the preliminary branches; that is, in the anatomy and physiology of the eye. Of course, it is impossible to tell how well this instruction is given. In some schools it may be merely a didactic course and not much of a course at that. In all but eight of the schools didactic instruction is still the leading method of teaching. Clinical teaching is given in sections in nearly all of the schools, a varying number of hours being devoted to it.

To my mind, one of the greatest difficulties in ophthalmological teaching is made by the teachers themselves, the great majority of men occupying chairs not having been trained in pathological methods. I see men from post-graduate schools who really have no adequate conception of the connection between general pathology and eye troubles. They regard the study of the eye as an addendum to rather than an integral part of medicine. I think the reform indicated by Dr. Wood that pathology be made the basis of ophthalmological teaching applies to the teachers themselves. There must be some self-education and readjustment of our own thinking.

The practical problem is how to prevent the increase in the large number of poorly trained men going out into the smaller cities to practice ophthalmology. I think that one important thing in this propaganda of better education that we have to look out for is that this work be arranged so as to allow men to get at it soon enough after their graduation, to have the actual teaching before their formative period is over. I cannot propose a solution, but I do think it is important for a man to get out of leading strings by the time he is 28 or 30 years of age. If you hold him back for general hospital work before admitting him to these post-graduate courses, it is going to be a long time before he gets into work.

I thought for some time that one of the most effective things would be to get the states to do something in the way of examinations for men who want to be specialists. It makes no difference how much a small group of thoughtful men urge courses which can be open to men if they want to take them: the shortcut methods are going to exist in spite of all we can do. The six weeks course will continue and will attract. What is to be done to put these fellows out of business, so to speak, I do not see. In some neighborhoods, certainly it is a very

pressing question. All through the South there is hardly a town of 500 to 1000 that has not an alleged oculist of its own, and the blunders that these fellows make are appalling. Men of that class are not going to the better schools where they will get these opportunities, unless they are compelled to. While I believe absolutely that the standards set down here tonight, especially those basing all instruction on pathology, are correct, I do think there is another very practical problem before us, and that is, how to prevent, by special examinations or otherwise, an increase of the very class of men we are after, the men who take the short cuts.

Dr. L. Webster Fox, Philadelphia: I have been greatly interested in the various essays; and feel that the writers have taken up the subject from their standpoints very ably, and have helped the teachers of ophthalmology in the various medical schools which, of course, must receive their aid first. For a long time I have felt that the post-graduate man should receive his preliminary instruction in the medical school. I mean by that that he should be stimulated by his teacher to take up that branch which he thinks he is able to follow in the future.

When I entered the Medico-Chirurgical College I was placed on the voting board of the faculty and that changed the spirit that had prevailed. Previously, if the students wished to attend the lectures on ophthalmology they could do so; otherwise, it made no difference. When they found that my vote was equal to the vote of the teachers in obstetrics, surgery, etc., branches which they must pass or fail in examination, I had no difficulty in having full classes. I gave very thoughtful consideration to the question of fitting these men for the position of general practitioner. Of course, I had the advantage of being educated abroad, of having studied ophthalmology under some of the ablest teachers as an adjunct to general medicine. The attitude that I took was that ophthalmology was the leading branch in our curriculum, and that the men must know more about ophthalmology than about any other branch. As a result I had no difficulty in organizing my bedside classes, classes in refraction, dark room and out-patient department. These classes were conducted by competent assistants and under my guidance. I thus found that the students would attend my lectures. We had quizzes and at

the end of the year the men were as well able to answer questions in ophthalmology as in obstetrics, medicine or surgery.

A further question arising was, whether or not it was fair to make every man an ophthalmologist. Only a few men in any class desire to take up a specialty. So I found that by organizing a society of ophthalmologists in the graduating class the question was settled. Opportunity was given these men to write papers on various subjects. I found that our teaching, so far as I could go in that respect, was a great aid to the post-graduate school. I told them that they could not become good ophthalmologists in the last year of college. Of course they had the preliminary knowledge in physiology, anatomy and the pathology of the eye so far as it would go. All my specimens were sent to the laboratory with complete notes of the cases, so that students who wished to follow up that line could do so, which they did. Our short course of six weeks in American colleges should be made six months or a year. It is not fair to give these men three and six months courses with men who are only trying to get through with their work for the next class. That is one of the criticisms I have had by men who have been general practitioners for quite a number of years. They have not received from the post-graduate course that to which they felt that they were entitled. I feel that if this course were lengthened, with teaching now given by the colleges in Pennsylvania, we should have the question settled. Our college is one of the first which is going to have the year in hospital work. We have now in our legislature a bill which will probably pass that all men passing the state board will have to spend a year in the hospital. Nearly every hospital in our state has attached to it a good ophthalmologist, who can have these young men under his care for the whole year. These young men can follow cases and become competent ophthalmologists far better than in any other way I can see. My last assistant has been with me six months, and a more capable man I have never met. He is an enthusiast and has followed up every detail. So I can see that this propaganda started here tonight can be made of great value by the publishing of these papers, so that the matter may be taken up by the various colleges and carried out as desired,—first to have the men finished as practitioners according to the demands of the state board. I have even gone so far as to have some of our state board question on the eye,—two or three every year,

such as prevention of blindness. We have taken up the question of ophthalmia neonatorum. No student will pass me unless he knows that subject absolutely from beginning to end. Also the differential diagnosis between iritis and glaucoma—which every practitioner should know. We should insist that the men know ophthalmology from the practical standpoint as well as from the theoretical.

Dr. F. Park Lewis, Buffalo: It seems to me that there are two other questions that are being confused. The first is, Are we encouraging the supplemental three months' study or not? the second, What shall be done with the intelligent, sincere man who wants to study ophthalmology as a distinct specialty? The latter question is a very practical one, and one which I have had asked me within the last year by a thoroughly capable man. He asked "Where shall I go in this country to get complete training in ophthalmology?" I was unable to answer. There isn't any place in which complete and systematic training is given. The student may take three months, repeat three months, and repeat again, but he is not getting a complete and systematic training in ophthalmology. It seems to me that the greatest desideratum is a return to that line of teaching in general medicine emphasized by Clifford Albutt, Gowers and Hughlings Jackson a number of years ago, in which the relation of the eye to general medicine was made so prominent in the teaching of a student that he was made a competent general practitioner with the relations of the eye clearly understood. He knew the relation of brain conditions, limitation of field, how to see the optic nerve and to recognize its pathology. That sort of training is essential to a thoroughly competent general practitioner, whether he is an ophthalmologist or not. Having gotten that, he will find his supplemental training not particularly difficult, because simply an amplification of that kind of training.

One other point which has impressed me as a practical matter is that there is such a thing as staleness from over-training. A man whom I know to be the most thoroughly educated in the practice of medicine is an impractical, unsuccessful practitioner. He had his instruction poured into him for so many years and from so many different directions that when the time came for him to apply it he was not able to do it. He began to practice, and, making some unfortunate mistakes, he made the further mistake of going abroad again for

supplemental training. In other words, he had lost during the period in which he ought to have acquired it, his ability to apply his knowledge. So it seems to me there is a time beyond which it is not wise for a man to go with his training. That is being recognized in the relationship of the literary departments of colleges to medicine in allowing the first year of medicine to apply on the last year of the college course, making the college course three years instead of four. The only objection to the suggestion made by Dr. Howe is that after having eliminated the particular things which do not seem to be necessary in the practice of ophthalmology, suppose the man after practicing ophthalmology a year or two wants to go into general medicine. He never has been trained in the essentials. Then is it true that his degree, instead of being one of a doctor, would be that of a specialist, who is only partially trained in general medicine. It is not adequate if he does not take those things which constitute a broad medical education.

Dr. William H. Wilder, Chicago: It seems to me that the only definite proposition thus far is the system proposed by Dr. Zentmayer in his paper. I think emphasis should be placed on this point, that the making of a specialist in ophthalmology must begin in the undergraduate department of a medical college. If you do not have a man well grounded in the principles of medicine, you certainly will not get a very fine superstructure in the way of an ophthalmologist. We are approaching a time in the history of medical instruction in this country when, instead of three years and four years, we are going to have five years of required medical instruction. I suppose every man in this room, with possibly one or two exceptions, went through his medical course in three years or less; some of us can recall the time when we had not even graded courses in medicine. I went to the oldest medical college of Ohio, the University of Cincinnati, and sat on the benches for three successive years, and I heard the same lectures every year. Then there came the improvement of the graded course; then the three-year, and again the four-year course; and now, gentlemen, we are going to have a five-year course in this country. In the institution of which I have the honor to be one of the faculty, Rush Medical College, this is soon to be adopted. I believe that soon all medical schools of good standing will require the fifth, a clinical year, in some accredited hospital. The

product of such training is going to be prepared for good work.

The next question is, How will you prepare these men? On this question Dr. Zentmayer has given us valuable suggestions. Another question is, What proportion of time should the student give to ophthalmology? Some would say 100 hours; some, 150; but you must remember that the time is already filled. The most I can get my institution to allow is 60 hours, and I think we are giving as much instruction in this department as almost any of the best institutions. We have four years of nine months to which we are going to add this required clinical year. We have 60 hours major or 120 hours, two minors; that is, we allow only half as much credit for clinical work; half as much credit for laboratory work as for didactic work and quiz work. Is that the proper balance? It is the most I can get, because there is allowed only three majors to gynecologic and obstetric work combined. The question for us is, what proportion can we demand that the undergraduate shall take? Personally, I am satisfied that we should take the stand that ophthalmology in the curriculum of any well ordered medical institution should be a required study and not an elective. As Dr. Fox has said, the incumbent of the chair of ophthalmology should have an equal voting power with the professor of surgery so that the students shall be impressed with the importance of work in his department.

Then there is the question, how shall we divide the time? I should dissent from the opinion of Dr. Wood. I think that 20 hours out of the amount that we can demand of the faculties is altogether too much to spend on just this special pathology, because each one of these students is up in his senior year. He has had three years in medicine. He has had splendid training in bacteriology and in general pathology; I dare say far better than the training almost any of us have had the opportunity of getting, unless we went abroad for that special purpose.

In my own department I require that a certain number of hours be spent in didactic courses. That is, a lecture course given by the head of the department or by one of the older instructors, combined with quizzes. Here again is an important matter. Oral quizzes are, in my opinion, a snare and a delusion. The bright men waste a lot of time waiting for the dullard. The quiz that is worth while is the written one. The

first 20 minutes may be taken up with writing answers to questions which are put upon the board. By such a quiz as that given every two or three weeks you will ascertain what is being absorbed. Then there is a certain amount of outline work in the way of reading on which they must hand in theses. That means extra work on the part of the instructor, but it pays. Then there is the practical work in examinations of the eye. The students go in small groups to the dispensary and are taught methods of manipulation of the eye, tests of vision, methods of examination, and the principles of ophthalmoscopy, the principles of refraction, etc. When they have taken these two courses, they are eligible to the clinical courses, which are as far from the old style clinical course as it is possible to have them. They are conference clinics. The cases are studied for 20 minutes or half an hour before the clinic opens and then are brought before the class and conferences are held on them, in connection with pathological material under the microscope.

We must first determine how much time shall be spent upon ophthalmology in comparison with other studies. If the result does not meet with the approval of the authorities you will not get anywhere. If you have the five years' course you have a foundation on which to build. The question arises, how you will build upon it. I think Dr. Zentmayer's plan an excellent one. In my own institution we offer certain suggestions to post-graduates, and some of these have been carried out. We say that they must come to us for a year and a half and take a certain prescribed course in the bacteriology and pathology of the eye. Furthermore, we have urged them to complete their work, by securing an internship at the Illinois Eye and Ear Infirmary, which is larger than any other in the west in the number of cases and extent of facilities offered. Unfortunately, that being a state institution, we have met with much difficulty in introducing any thing like systematic teaching there, as some of us would so much have liked.

Recently at Washington when it was proposed, as I understand, to have in the new American College of Surgeons a department of the eye, ear, nose and throat. Most of you are familiar with the plan of that new organization. If this is successfully carried out, will it not stimulate just the sort of thing that we want, namely: The proper teaching of ophthalmology among those who are ambitious enough to get a de-

gree from such a body as this American College of Surgeons. Or, if we as ophthalmologists, are not satisfied with the American College of Surgeons, why could we not organize an institution somewhat similar in plan which would accomplish this purpose that we desire? At any rate, such an organization would tend to stimulate the proper education in ophthalmology. I don't believe we shall ever reach a time when we shall get away from cheap schools which are sending out full-fledged ophthalmologists, otologists and rhino-laryngologists in six weeks. We now find that some are engaging to manufacture them by correspondence. Such things as these should receive the severe condemnation of educated ophthalmologists. If we can only formulate some plan among ourselves that will aid in this excellent work which Dr. Jackson has started, it will be a long step forward.

Dr. Walter B. Lancaster, Boston: It seems to me that we have two problems to deal with: The present conditions that confront us, and the ideal that we should like to attain. The present conditions include supplying the demands of those who come up for a *brief* course in ophthalmology, and we have got to do something with them. The ideal is the course we all want to offer which is designed for the Class "A" men which Dr. Wilder has just mentioned. I think we can in a way combine the two. The best way to stimulate the Class "B" men and to secure a higher standard of work from them is to place the Class "A" men before them. If we can carry on the two grades of instruction instead of one (Class "B" only) as at present, we shall be able to elevate a number from Class "B" to Class "A".

I think we should organize the teaching of ophthalmology by having at the top a department of research. Nothing is more stimulating, nothing kindles enthusiasm and keeps up a high grade of work better than research. Next would come the Class "A" men devoting adequate time to properly systematized courses. Lastly, we must do something with those men who want a brief course, for until some standard is established which eliminates from our consideration the large class that wants to get through on inadequate preparation we have got to do something with them.

Now in considering the Class "A" men it seems to me clear that we cannot turn out a man thoroughly finished and fully equipped in ophthalmology in any reasonable time. We

can only start him on the right track, inculcate right methods of working and learning, impart the scientific spirit. We must stimulate the critical faculty so that a man will be able to judge something of what a scientific proof is, and not be led astray by a specious new doctrines which lack solid foundation.

It becomes a question then of elimination; we cannot cover all the ground as fully as we should like. Several years work would be necessary to turn out a man thoroughly equipped in ophthalmic pathology alone. I think the best way to take care of the problem of pathology is to have one or two men in every large center who make a specialty of ocular pathology and attend to the details of laboratory work. The teaching of ophthalmic pathology to the average man might be done in this way: First, he should have a comprehensive didactic course illustrated fully by specimens and by lantern slides. Second, some problem in ophthalmic pathology should be worked up in the most thorough and intensive manner under the guidance of the teacher in order to give an insight and working acquaintance with the methods, point of view and true spirit of the ophthalmic pathological laboratory. It makes little difference how small the problem may be if the student goes into it with sufficient enthusiasm and thoroughness, studying critically the history of the theories that have been held, investigating it from the points of view of anatomy, physiology, chemistry, clinical medicine and every possible aspect. A few months of study like that is worth more than a great many hours of didactic teaching alone. A similar method could be employed in other subdivisions of ophthalmology. It is not unlike the recommendation that a student should know something of every part of the subject and everything of some part.

When it comes to clinical teaching—and I should say that we have to divide the subject into physiological, pathological and clinical branches, all equally indispensable though the physiological most needs emphasizing because of late most neglected—the clinical teaching should be interwoven as far as possible with both the pathological and the physiological. I should like to reply to some of the criticisms of my views on the importance at the present time of devoting more time to teaching of physiological optics, but, as suggested by the chairman, will defer that until tomorrow.

Dr. F. Park Lewis, Buffalo: It seems to me that there are two ideas that are being confused. The first concerns the desirability of the three months' supplemental study; should we encourage it or not? The second is, What shall be done with the intelligent, sincere man who wants to study ophthalmology as a distinct specialty. The latter question is a very practical one, and one which I have had asked within the last year by a thoroughly capable man. He asked, "Where shall I go in this country to get complete training in ophthalmology?" I was unable to answer. So far as I know, there isn't any place in which a complete and systematic training can be had. The student may take three months, repeat three months, and repeat again, but he is not getting a systematic and complete training. A man whom I know to be the most thoroughly desideratum is a return to that line of teaching in general medicine emphasized by Clifford Albutt, Gowers and Hughlings Jackson a number of years ago, in which the relation of the eye to general medicine was made so prominent in the teaching of a student that he was made a competent general practitioner with the relations of the eye clearly understood. He knew the relation of brain conditions, limitation of field, how to see the optic nerve and to recognize its pathology. That sort of training is essential to a thoroughly competent practitioner, whether he is an ophthalmologist or not. Having gotten that, he will find his supplemental training is not particularly difficult, because it is simply an amplification of that kind of training.

One other point which has impressed me as a practical matter is that there is such a thing as staleness from over-training. A man whom I know to be the most thoroughly educated in the practice of medicine is an impractical, unsuccessful practitioner. He had his instruction poured into him for so many years and from so many different directions that when the time came for him to apply it he was not able to do it. He began to practice, and making some unfortunate mistakes, he made the further mistake of going abroad again for supplemental training. In other words, he had lost during the period in which he ought to have acquired it, his ability to apply his knowledge. So it seems to me there is a time beyond which it is not wise for a man to go with his training. That is being recognized in the relationship of the literary de-

partments of colleges to medicine in allowing the first year of medicine to apply on the last year of the college course, making the college course three years instead of four. The chief objection to the suggestion made by Dr. Howe is that after having eliminated the particular things which do not seem to be necessary in the practice of ophthalmology, we have omitted some of the fundamentals of general medicine. Suppose, then, the man after practicing ophthalmology a year or two wants to go into general medicine. He never has been trained in the essentials. Then is it true that his degree, instead of being one of a doctor, would be that of a specialist who is only partially trained in general medicine. It is not adequate if he does not take those things which constitute a broad medical education.

Dr. Frank C. Todd, Minneapolis: We have been discussing post-graduate instruction in ophthalmology as if it were intended to prepare a man as an ophthalmologist. Is it not true that the post-graduate schools have been offering post-graduate courses in ophthalmology for the purpose of brushing up the general practitioner in his knowledge of ophthalmology? That class of post-graduate training must continue. This course will naturally be a short course. I believe this course is given in some of the schools with that object in view, but some of the men taking the course assume that they are being prepared to become ophthalmologists and branch out into ophthalmology after taking such a brief course. In the education of an ophthalmologist we require, not alone, the foundation (concerning which we have already had so much discussion) Dr. Wilder has hit the nail on the head when he speaks of the fact that we cannot give to our under-graduate students the number of hours that we ophthalmologists may think they require. We have to take into consideration the ideas of other members of a teaching faculty representing other branches.

Dr. Wilder and I served on the so-called Model Medical Curriculum Committee of the American Medical Association. This committee made an attempt to formulate a model medical curriculum. After a year's consideration by the various specialists in different branches the whole committee got together. The committee was composed of men from all over the country interested in the various branches of medicine,

and it was found that although we had intended to plan a course of 4,000 hours we had a course of about 8,000 hours. Men in various branches had considered that their branch was so important that they had brought in work consuming far too many hours. We worked the report over, bringing it down to something below 5,000 hours. That left for ophthalmology, otology, rhinology and laryngology altogether about 140 hours. That seems to be about the number of hours that can be allowed in a four years' course. We have in our schools here about 80 hours in ophthalmology, not counting it in majors and minors. We believe that clinical and laboratory work should count for as much as didactic work. This then cannot give us much opportunity to form a foundation in ophthalmology other than that established through the general knowledge of medicine required.

The function of a medical school is that of preparing men to be general practitioners, so that we have no right to attempt to make them specialists. We have already started in the University of Minnesota the fifth hospital year. The class that entered last year entered that course, and it is our intention that this fifth clinical year shall allow the men to follow their particular bent in a greater degree and this we shall be able to establish a proper foundation for those who later desire to take up ophthalmology.

It seems to me an excellent course for the preparation of an ophthalmologist is that offered at Ann Arbor. Dr. Parker can explain to you how they are educating a few men to become specialists. The system has seemed to me so valuable both in the matter of preparation of graduates for special work that I intend to have it introduced so far as ophthalmology is concerned in the University of Minnesota.

Dr. W. R. Parker, Detroit: I feel very much complimented by Dr. Todd's remarks. Before taking up the scheme that we have carried out in the University of Michigan in the three departments which have been mentioned I would like to enter a protest against one or two items. I do not believe a didactic lecture course has any place in undergraduate teaching in ophthalmology. It should be text-book work. I think that lectures bear the same relation to the text-book work as operating before the whole class does to operating before sections. We have all done away with our large clinics. We

should. I think, all do away with didactic lectures—take Jackson's "Ophthalmology" for instance as a text-book. Assign the students a lesson then quiz, lecture and illustrate by cases.

The next thing that I believe should be relegated to the past is the presentation of cases that have not been worked up. Each case should be referred to the internist or the neurologist, if need be, and the case worked up before it is presented to the clinic.

In the arrangement of the course the juniors have six hours a week for six weeks in embryology, anatomy and physiology and with familiarizing themselves with the instruments. Each one is obliged to sketch, at least, one fundus. He has to prove to the instructor that he has seen that fundus. That is practically all we try to cover with the junior work. Then the seniors have seven hours a week for six weeks. These are devoted to external diseases of the eye and to refraction. In addition, the students attend the operating table twice a week. Each senior must hand in a carefully written report of two cases. He can have access to any notes, and the report is turned in as a part of his senior year work. The text-book work, one hour a week, continues through the year. The total work given is 36 hours to juniors and 42 to seniors in sections, and 30 hours in text-book to seniors. Like Dr. Fox, I have a full vote on the faculty. The work which we give to under-graduates is insufficient to fit them for skilfull special practice.

I practically qualify one man a year for working in ophthalmology. We have a special ward with 20 beds. In my service, the interne, after a year's service, is promoted to the position of an assistant with a salary of \$500. Dr. Peterson and Dr. Canfield keep their assistant three years, the last year as an instructor with a salary of \$1000. We each turn out one specialist a year.

There are two distinct problems: (1) How much ought we give to the undergraduate to prepare them for general work. (2) How are we to prepare specialists to carry on the work in ophthalmology?

Dr. Casey Wood, closing: As I stated in my paper, local conditions must necessarily influence the number of hours assigned to the ophthalmological course, and the head of the department will have to be governed accordingly.

Dr. Allport, closes: I think the moment you allow a man to neglect any part of a general medical education you are casting the same slur upon that broad and essential study that we sometimes feel is being cast upon ophthalmology. I am firmly convinced that any specialty in medicine or surgery should be an outgrowth of general medicine or of surgery. I do not think that a man should step from the graduating room immediately to the study of a specialty. He should have a general preparation. He should either enter general practice or take an apprenticeship in a hospital for a year or eighteen months or two years. We who are practicing ophthalmologists see the importance of this more and more every day. No man should undertake to practice ophthalmology or any other specialty without this fundamental education and experience in general medicine.

Dr. Davis, closes: We have organized a post-graduate course in which we do not issue certificates for six weeks. We have issued certificates simply stating the fact that the men had attended a post-graduate school for so many weeks. That is all past and last year we completely reorganized the department dividing the teaching into three months as Dr. Zentmayer mentions is done in Philadelphia and it is necessary for the students to take at least three months. The question arose whether we should call this course a school ophthalmology and the directors directly sat down upon that as a distinct part of the medical school. It is still one of the branches there and held in that position. We encourage the students to take, not three months, but six months to a year in the school. I concur very heartily with Dr. Allport in the fact that a man should first be a doctor before he is a specialist. We never know what we are coming up against when we begin to specialize. I think the plan outlined by Dr. Parker is a very good one. We gave didactic instruction in the post-graduate work in the refractive part of the courses and immediately had the students apply the instruction with the patients. I think Dr. Lancaster's suggestion to have one instructor give both practical and theoretical instruction is a good one. I shall keep in mind Dr. Parker's suggestion regarding text-book instruction.

Dr. Zentmayer, closes: I only wish to say that we are

up against exactly the same proposition as others who have spoken. It was our desire to do away with the six weeks' course and have nothing less than four months, but we were met with the assertion that this could not be carried out. No six weeks' student should receive a certificate. For the three months' course it was decided that the certificate should state simply that they had attended for such a length of time but should not give a certificate of proficiency, that a certificate of proficiency should be given only when the examination was passed. That is as far as we were able to go.

As to the didactic lectures, I am heartily in favor of them, for the reason I stated, that most of us have acquired our knowledge from almost every text-book and from our own experience. Time and time again pupils have come to me at the end of the course, and asked, "Where can we get just what you have taught us in your lectures?" I say, nowhere, because I have acquired it from years of experience and from different sources. They would like very much to have a syllabus of my lectures for that reason. They can not get that from any text-book, even Dr. Jackson's. We have two young men who give quizzes and nothing else, and they report to us the progress made by the students. Conference work we have not developed very greatly. The best I can do is to attempt to get students together at the Wills Hospital, and take up my previous lecture. This is entirely feasible at the Wills, where we have so many patients.

Dr. Black:— I have taught ophthalmology by the method spoken of by Dr. Parker for ten to twelve years and I presume I should still be teaching it in that way but that I abandoned it two years ago for the didactic method. I believe the results and the whole plan are more satisfactory than the plan of assigning lessons in text-books. There is little opportunity to study any assigned lesson. There is always a certain number of the class who will not, and it is a difficult matter in the quizzing to get over the entire class. If you skip about it is hard to keep track of the ones who have been quizzed. If you go around in the routine way the fellows know they are going to be called on and are prepared and those who are not do not study the lecture. I find that the students are better prepared at examination by the didactic method than from the assigned lessons.

We are confronted with a definite proposition which is being thrust upon us by the so-called optometrists. We may look upon the matter with little concern, but the fact remains that we are being made to sit up and take notice. These gentlemen are a formidable contingent, and some are very far from being fools. Some are very bright men, very intelligent, and some of them very well prepared to do refraction. This is a small minority but this minority is controlling the majority. It seems to me that we as ophthalmologists must be prepared to answer their question: "Where did you get your instruction?" "Where did you get your title?" "For what reason do you assume that you are more competent to do this work than we?" Are we prepared now to answer these questions? It seems to me that we are not. The course which we have been giving in Denver gives us a nucleus from which to build. It has set the whole ophthalmological part of our profession in this country to thinking, and that is a thing very truly to be wished for, and it is hoped that it will bring about results. Two hundred hours of work these men get in six weeks, and in addition they are started in the right direction. They are compelled to do a certain amount of work during the following year of a kind which is approved by us. This will place them in position to work without being a menace to the community, and without being a reflection upon the ophthalmological profession.

Dr. Jackson: It is a practical question that has come up this evening. There are a good many things to discuss and many questions to be separated one from another. It is the function of discussion to make distinct the issues. Perhaps we are as well qualified as any to decide the question whether or not it is worth while to have another conference of teachers of ophthalmology in connection with the next meeting of the American Medical Association or at some future time. I should like if you feel inclined to discuss this question for a few moments that you will take it up.

On motion, the chair was authorized to appoint a committee to consider the matter of another conference, and with power to take such action as they deemed best. This committee was named as follows: Dr. William Zentmayer, of Phila-

delphia, chairman, Dr. A. E. Davis, of New York, and Dr. J. C. Lichtenberg of Kansas City.

**AMERICAN MEDICAL ASSOCIATION.
SECTION ON OPHTHALMOLOGY.**

SESSION HELD AT MINNEAPOLIS, MINN., JUNE 17-20, 1913.

Chairman's Address: Three Ophthalmic Questions: Optometry, Conservation, Education.

Dr. Hiram Woods, Baltimore: Called attention to three matters of importance to ophthalmology. The first is optometry. A reading of optometry literature leads to the conclusion that they are working on a mental bias, and we are soon in the familiar torrent of abuse of "drops," laudation of "fogging," attempts to draw conclusions from ocular phenomena clearly symptomatic, etc. He asked whether the course in optometry at Columbia University had attracted men with honest intentions, and called attention to literature circulated by the American Optical Company on "Modern Optometry and Conservation of Vision" and to other specious literature of the kind, articles some of which have sufficient scientific veneer to fool the uninformed person, student or legislator. He questioned the wisdom of abolishing the Section Committee on Optometry and believed the section still had educational and legislative obligations to fulfill in this respect.

He reviewed the history of the work on the conservation of vision and the prevention of blindness, and believed that the national movements in this direction had accomplished less than was hoped for because the work was started before the proper foundations were laid. The professional and public mind should first be prepared to receive the lessons and then they should be forced home. Leadership was needed which should be furnished by the section.

On the question of education, he discussed the recommendation of the sub-committee of the Council on Health and Public Instruction concerning the eye and directed a questionnaire to a number of medical schools to bring out the plan of preliminary teaching in ophthalmological subjects followed by them. He said that the introduction into undergraduate work of really careful preliminary teaching in anatomy and physiology, self-training in pathology by the eye teacher, if

necessary, and ophthalmic instruction from these points of view may be depended on to change the student's mental attitude and fit him for post-graduate university opportunities. The first step in the proper teaching of ophthalmology is insistence on preparation in undergraduate life for medical ophthalmic thinking. Also, the essence of post-graduate work is neither multiplicity of subjects nor amount of time. It is drill in thinking; training in method. Simplification and formulation of the method is the present problem. Thanks largely to the campaign that has been started by Dr. Edward Jackson, the profession, especially its teachers, are becoming interested in this subject and alive to the necessities for a change.

This particular question, then, is but one of many that should be settled in this very important matter of the proper and adequate preparation of an ophthalmologist. The scope of Dr. Lancaster's paper does not permit of the discussion of this larger subject at this time, but I feel that we are indebted to him for bringing this phase of the subject up for consideration. I hope it will not only bring forth a fruitful discussion, but that some action may be taken in the way of the appointment of a committee as suggested by our chairman in his opening address to consider the whole question of the proper training of an ophthalmologist. Such a committee could prepare a model curriculum and make other recommendations that would be of very great value.

We have but to look about and to listen, to realize the need for such improvement in our methods of educating ophthalmologists. We are in much the same position that medical schools were in before the graded plan of teaching was inaugurated and while often good results are attained, more frequently a poor product is produced.

Physiologic Optics the Basis for Teaching Clinical Ophthalmology.

BY WALTER B. LANCASTER, BOSTON, MASS.

Abst.—Physiologic optics so permeates the whole of ophthalmology that no part of that large field can be mastered without a good understanding of this subject. Nowhere in this country has there been offered a systematic course in physiologic optics founded on laboratory work and covering all main subdivisions of the subject in reasonably adequate fashion.

Advantages of combining laboratory and clinical work in the same course. Courses in physiologic optics should include not only dioptries and refraction, but binocular vision, ocular movements, light sense and problems of illumination, color sense, visual fields and all other subdivisions of the subject. Value of a diploma or degree of some sort as a guarantee that its holders have had adequate training before they join the ranks of specialists in any of the special fields of medicine.

DISCUSSION. Dr. Frank C. Todd, Minneapolis: Altogether insufficient attention has been given to the systematic training of ophthalmologists. Heretofore such training has been of a hit or miss character and left largely to the student, who is often unfit to determine what is most needed and consequently may embark upon his life practice as a specialist in ophthalmology quite unprepared to meet the problems he will be expected to solve.

It is therefore quite timely that the section in ophthalmology of the American Medical Association should consider the question of the proper preparation of the ophthalmologist. Last year Dr. Jackson presented a paper along these lines, and, as you all know, has started a course the purpose of which is to encourage proper and systematic preparation of a student for the practice of ophthalmology, and this paper deals with an important detail of that subject.

Dr. Lancaster is certainly correct in criticising our present lack of system in such training, and his suggestion of the need of a more complete course in physiologic optics, which surely is an important basis for the teaching of clinical ophthalmology is a wise one.

If, then, we admit that he is correct in stating that physiologic optics should form the basis for the teaching of ophthalmology, it remains to determine the question as to the amount of time that should be devoted to this subject. I confess that I do not feel able to determine this point. The beginner in the practice of ophthalmology will have little opportunity to perform the major eye operations, and I believe it is the usual experience of the beginner that he has no such operations for several years in his private work. Nearly all of the work that comes to him consists in the application of his training and study of the errors of refraction, muscle insuffi-

ciencies, or at least those diseases and afflictions dependent upon such errors, so that in the average instance such a beginner would be better prepared to undertake the work he will be called upon to do if he has had an adequate training in physiologic optics, than if he has spent a large amount of time preparing to do operations which he will not have the opportunity to perform during those weary days of waiting.

There comes into this question of the preparation of an ophthalmologist the consideration of the amount of time that should be devoted to each particular branch of ophthalmology. It is somewhat a similar problem to that of determining the relative importance of the various branches of medicine and the amount of time that should be allotted to each department in the under-graduate medical school where men are being trained to become general practitioners, indeed, it is a subject for careful consideration and thorough discussion, and I believe that most of us are as yet unsettled in our ideas, as we are only entering into its proper consideration.

Dr. Jackson of Denver: Dr. Lancaster's paper alludes briefly to the connection of physiologic optics and lacrimal disease. As he casually mentions it one might think it not an important matter, but it may be extremely important. A few months ago a woman of 30 came to me with this history. She had been treated 15 months for lacrimal obstruction—9 months by a man of wide experience, for many years professor of ophthalmology in a good medical school, and $6\frac{1}{2}$ months by a younger man, who has good work to show for a post-graduate course in Vienna. The lower canaliculus had been slit, solutions injected, probes passed daily or at longer intervals. The lower lid and adjoining portion of the cheek were red and eczematous from the tears that ran over although she had used every night a protective ointment without which the skin became much worse. She was wearing glasses R. +1 cyl. 1. +1.25 cyl. axes 90° . She needed the cylinders increased 0.25 D. their axes shifted 15° and 8° respectively and +1. D spherical added. Without treatment of the lacrimal apparatus, she was markedly better in ten days. In a month she reported that not a tear had flowed over her cheek for a week. In three months she was entirely well except that the lower canaliculus has been slit: and as it was when I first saw her entirely closed, probably from treatment.

This is not the only case of the kind. Something like one third of the cases that I see which have been treated for lacrimal obstruction are of this general character. They represent lack of fundamental training with regard to physiologic optics. Dr. Lancaster's remarks may be thought of as commonplace and unimportant. They refer to facts whose enormous importance is not appreciated because they are so common.

Dr. S. D. Risley, Philadelphia: I know from a large experience that what Dr. Jackson has said about the subject is true without submitting any statistics on the subject. I wish to call attention to the direct opposite condition in which the retention of the tears is the occasion of an asthenopia even after careful and accurate correction of the refraction has been made. Again and again I have seen persons suffer in this way. My first case was one of my professional friends whom I had corrected as carefully as I knew how, but he could not be comfortable. I did my best to discover the cause of it. One day he came into the office out of a north-west wind and I saw tears flowing over his face. I had discovered the cause of the trouble and when I dilated the little canaliculi with a probe the trouble disappeared. Under ordinary circumstances he had no difficulty, but this slight retention of tears had made a prism with the base on the lower lid. So that the opposite might be true.

Dr. Edward Jackson, Denver: That was a point in physiologic optics, was it not?

Dr. Risley: O yes, it shows that lacrimal disease has an important connection with physiologic optics.

Dr. Lucion Howe, Buffalo: Our attention should not be drawn away by the discussion of examples. It is a question of the practical education of the ophthalmologist. It is a thing on which most of us have strong convictions. I hope that those who have been prominently identified with this subject will bring it before us in a proper way so that it will come directly as a report from some committee.

I appreciate the importance of the observations which have been made by Dr. Lancaster, but, as I read the signs of the times, the time has come when we must not attempt to crowd the mind of the medical student with a great many things which he may possibly need, but should give him the facts

which he actually does need. We are all agreed as to the necessity of his having a preliminary education first: second is the fact that he should have spent at least three years in a college or school the equivalent of the German gymnasia; also the first two years in a medical institution. Then we should say to that boy, You need not be a doctor of medicine, but you may be also a doctor of ophthalmology or an anatomic surgeon, etc. That same evolution has taken place in the colleges. I can remember when there was no election and it was Greek and Latin and mathematics, and you must be a bachelor of arts. Now the colleges say they must keep pace with the times and you may be a bachelor of science, an engineer, an electrical engineer, etc. That evolution has taken place and it must take place in medicine, and when we have that and we give to a man a diploma which allows him to say he is a doctor of ophthalmology, etc., then it will be better for him and better for us: it will be better for the public at large and it will be very much the worse for the opticians who can now call themselves doctor of optics in three or four weeks in some institution of which the public does not judge. I think that time has come in the stage of evolution.

Dr. A. Edward Davis, New York: Dr. Lancaster's paper and the chairman's address certainly have a direct bearing the one on the other. We must not underestimate the importance of physiologic optics, for that is the superstructure. The basis and foundation I think should be the preparation of the student in the histology and pathology of the eye. In this country, at least, I think that is where the specialist is weak, not that he is not weak in physiologic optics. We have to go abroad if we want to study the histology and pathology of the eye, and they constitute the very kernel of our subject, which takes us abroad more than anything else. I think we excel them in this country in physiologic optics, although it is very poorly taught. Before a man becomes a specialist, like the artist who paints the figure, he must study anatomy if he wants to make a good picture and put the drapery on right. If we train these men in the histology and pathology of the eye then they are ready to put the glasses on in the proper way. They know what they are driving at.

Another point is to teach the men the intimate relation between the eye and general diseases. An oculist should be

something more and not something less than a doctor. In other words, where all have the same course to a great extent, a man ought to know his mind before he gets out of the medical college as to the line he will study later: but, failing in that, he must do it afterward. Then is the time to get the superstructure. The disgrace of optometrists and optometry in this country is due perhaps in great measure to our own faculty training. No man should even be allowed to fit glasses unless he has all this other training.

Dr. Frank Allport, Chicago: I do not know whether I misunderstood Dr. Howe, but I judge his idea in that the student in the latter part of his course in the medical college may elect what branch of medicine he is going to study, and fit himself for that. I do not like to allow that to go unchallenged, because I think that we ought to bear in mind that the first thing essential to the education of a specialist is a thorough groundwork in medicine. No man should be a specialist unless he has first graduated in medicine to the fullest extent. We demand that the refractionists or optometrists shall not fit glasses because they are not doctors, then why should we take down the bars to somebody who seeks the higher education, it is true, but still who does not care to go through the grind of gynecology, obstetrics, etc. which he never intends to practice. These two courses are not compatible. If we demand a general medical education on the part of the refractionists and optometrists, we should also be willing to submit to the same dictum ourselves. No man, in my judgment, should become a specialist until he has first had a complete general medical education with all that that means, and has subsequently either practised medicine for a certain number of years—I cannot say how long—in order to familiarize himself with the general principles of medicine and surgery, or, in lieu of that, has had an internship of eighteen months or two years in a hospital.

Dr. George H. Price, Nashville, Tenn.: I was very much interested in that part of Dr. Lancaster's paper in which he gave the number of hours to be devoted to various divisions of the subject of ophthalmology. If you take the number of hours devoted to ophthalmology alone, as laid down in this paper, it becomes the major subject in the fourth year of every student, unless there is special provision, as suggested by Dr.

Howe, for the purpose of allowing the man who has reached the third or fourth year to specialize along certain lines. The trouble is—and it has come into the teaching in every school—that any man or branch or chair thinks it is the most important in the institution. There is no branch or chair in any institution as important as ophthalmology to the ophthalmologist. We have not time in a four year course to devote to ophthalmology the number of hours suggested in the paper. If the same amount of time were devoted to gynecology, surgery, general medicine, etc., it would take twelve months in the year, and every school year would be thirteen months. The suggestions made by Dr. Allport and Dr. Howe are good. The time is coming, it is already apparent, when we cannot finish the medical course in four years. We have got to supplement it with the A. B. degree before they enter, and the time will be when we will give four years to the general course, which is an absolute necessity, and then there must be one or two years devoted to special work in each department to make men competent to practice any specialty.

Dr. Casey Wood, Chicago: In view of what Dr. Price has just said, may I ask Dr. Lancaster whether, when he makes the statement that the study of ophthalmology should require 300 to 500 hours, he was talking of undergraduate or post graduate study? It is not, to my mind, exactly clear.

Dr. Robert Sattler, Cincinnati: I attended some of the schools abroad, in Zurich, and was also with Donders and Professor Englander. When I returned home I felt the importance of teaching physiologic optics and attempted it. Subsequently it was altogether given up. I made an appeal to the students who came to me and I gave them special instructions. This was done for a number of years until it was found that it could not be taught properly unless it is made, as in the University of Colorado, compulsory. I believe that physiologic optics should be taught to undergraduates. We have a plan in Cincinnati University of teaching this in connection with the chair of physiology, devoting a certain number of hours to it, just as in anatomy a certain number of hours are devoted to teaching the anatomy of the eye. We have an understanding with the professors of anatomy and physiology that a certain number of lectures, not to exceed five, are to be devoted to these subjects. Then it is left to the students after-

ward to take these up as a post-graduate course. That is the plan we are taking now to prevent overcrowding. Certainly if so many hours are made obligatory it will be a very difficult task to teach it to the students.

Dr. Walter B. Lancaster, Boston: I am sorry the two subjects should become confused—the undergraduate and the post-graduate teaching. If Dr. Price would add to the 300 hours left for physiologic optics the number for pathology, etc., I think he would see the impossibility of it. It is absurd on its face for undergraduates—

Dr. George H. Price, Nashville: Was your paper written to apply to post graduates?

Dr. Lancaster: It was written to apply to the training of specialists.

Dr. Price: But it does say undergraduates.

Dr. Lancaster: Does Dr. Price think it possible to teach ophthalmology to undergraduates?

Dr. Price: No sir.

Dr. Lancaster: Now, when we have a program arranged, as I hope it will be, by a competent committee, we shall see that 500 hours is very much too short a time in which to cover the whole subject of ophthalmology. Two years, I should think, would be the minimum, and one year, under my program, would have to be devoted to physiologic optics. With regard to elective work after two years, I am sure Dr. Howe does not mean after two years. We will come to the five year course. After four years devoted to general medicine, I think a man is ready to do some elective work in his future specialty. The planning of the course in medicine has been one of accretion. A great many things have been added to the science of medicine in the last twenty or thirty years, every one of which has been added to the curriculum. The result is that it is overburdened and the work is not effective. We have got to begin the process of elimination, and when we do that we will find that we can leave out a great many unimportant subjects and leave room for the important ones.

The three next-following papers were first read, and then discussed together.

Some Modern View-Points with Regard to Glaucoma.

BY ROBERT SATTLER, CINCINNATI, OHIO.

Abst.—Should glaucoma simplex and acute inflammatory

glaucoma be assigned to separate categories? Is glaucoma a lymph- or blood-stasis or is it a sudden choking off of both and retention of greater blood-volume? Is this the glaucomatous impulse which starts biochemical or intra-ocular chemical forces? Is increased intro-ocular tension a distinctive feature only, which chronic and acute inflammatory glaucoma have in common? Modern views of normal tension: Tonometry: Inherent compensating properties of the protective and uveal tunics to conserve this. The meaning of its loss for senility, early fetal life or infancy. Is glaucoma simplex the prodromal stage of acute and subacute inflammatory glaucoma? Anatomic and clinical identity of congenital glaucoma simplex and glaucoma of senility. Is a similar conclusion probable in the case of acute congenital and acute senile glaucoma? Heerfordt's view. Fischer's colloidal conception. Biochemistry.

Discussion to be opened by Lewis H. Taylor, Wilkes-Barre, Pa.

Experimental Study of Intra-Ocular Pressure and Ocular Drainage.

BY MARK J. SCHOENBERG, NEW YORK.

Abst.—The Intra-ocular pressure measured by the Schiötz tonometer, records three factors. The steady application on a normal eye of a weight gradually reduces the intra-ocular pressure. This diminution is mostly due to the expression of intraocular fluid through certain channels outside the eyeball. The rapidity of reduction, while the tonometer is kept steadily applied on a given eye, constitutes its rate of ocular drainage. The author's study of ocular drainage has revealed: 1. In a normal eye a gradual reduction of intra-ocular pressure if the tonometer is applied for a certain number of seconds. 2. Variety in the rate of ocular drainage not only in different eyes, but also in the same eye, at different periods. Changes of i. o. pr. in one eye sometimes followed by similar changes of i. o. pr. in the other eye. 4. No conclusive evidence regarding the possibility of some kind of action starting from distant organs and influencing the i. o. pr. 5. The probability that the extra-ocular muscles play an important rôle in the various normal fluctuations of i. o. pr. 6. Different rate of ocular drainage in glaucomatous eyes from that of normal eyes.

Discussion to be opened by Adolph Alt, St. Louis.

Hydrophthalmos. With a Histologic Report of Two Cases, One of Which Presented a Congenital Coloboma.

BY WILLIAM ZENTMAYER, PHILADELPHIA, PA.

Abst.—Symptomatology, etiology, pathogenesis, treatment. Iridectomy has not stood the test of experience. Dangerous in most cases because the natural barrier between the vitreous and external wound has given way before the process of distention of the globe. Danger further increased by vomiting and restlessness after general anesthesia. Objection to posterior sclerotomy and paracentesis of the anterior chamber is that the operation must be repeated and often has to be supplemented by other procedures. Sclerectomy appears to be the operation which best meets the requirements. D'Vincini's operation also appears to be well adapted to the conditions present. Analysis of replies received to a circular letter to surgeons throughout the country. Some form of sclerectomy was the only procedure which gave satisfactory results to the majority of surgeons employing it. Histologic study of the eye with congenital coloboma showed an absence of the canal of Schlemm and a blocking of the angle of the anterior chamber by a proliferation of connective tissue which represented the pectinate ligament.

DISCUSSION. Dr. Lewis H. Taylor, Wilkes-Barre, Pa.: Strictly speaking from a reading of the title of this paper, "Modern Views of Glaucoma" there is but little to discuss, as the writer has covered the ground; but, as the paper itself goes into the general subject, including operative procedures, it opens to us again the wider field that we have so often and so hopelessly traveled.

I am reminded of the remark of a small boy, our next door neighbor in summer, whose reading and study had been much beyond his years, who had recently seen through his father's telescope the rings of Saturn, and who had read somewhat on the subject, and said "What these rings may be composed of has puzzled many learned men, and it puzzles me." Now, Mr. Chairman, I can say of the subject before us, it puzzles me as well as some of the rest of you. Some of you may remember a few years since a young man in our section said: "I wish I may be able to solve the problem of glaucoma," and one of our oldest members rather sarcastically replied: "We trust Dr. B's ambition may be gratified."

The writer raises the question as to whether increased tension be the first and actual dynamic factor in glaucoma. Whether it be or not, it is certainly generally true that it presents itself as the chief factor in the cases when they come to us. At least this has been my experience and I think it has been yours. If there are others we do not have the chance usually to see them as the patients do not present themselves to us until the disease is well advanced.

Dr. Sattler asks many questions which we would all gladly answer if we could. His view, as I understand it, is that acute glaucoma and subacute or chronic forms are different processes and from different causes and this may open to us a new thought worthy of consideration.

Modern viewpoints of glaucoma will include, of course, modern operations, and I imagine if a general discussion is entered upon, I will be on this part of the subject. Dr. Weeks, in a full discussion of this subject a few months ago before the Penna. State Medical Society, described nineteen different operations with several modifications of some of them. I think we shall all agree that at present the operation that seems to meet with most favor is that of trephining the sclera. I have seen the operation of Elliott and some others performed, but thus far I have only done the operation of iridectomy, the operation that Dr. Risley holds, if properly performed, is still the best of all, and so I am not prepared to speak from personal experience but only from observation of the newer method. I do not agree with the author that it matters little which operation is performed if the operator thereby can only do a little good, stay the final extinction of function and at the same time avoid doing harm. It is also a modern conception of glaucoma with some ophthalmologists, that all operations are of doubtful value especially in hemorrhagic glaucoma, except that of enucleation.

As the essayist has well said: "With a fuller knowledge of the pathological anatomy and a larger clinical and surgical experience with glaucoma simplex, we must realize our helplessness for even in spite of the most timely and carefully executed surgical treatment, most cases go to their doom." And I hereby agree with another of large experience as an operator who has recently said: "It is a rule with the writer never to operate for glaucoma if the tension can be held at normal and loss of field and vision prevented by miotics."

Dr. Emmet L. Jones, Cumberland, Md.: The experience I have had with glaucoma is not large, but is in a direction entirely different from that in which everybody else has been looking. I have for a long time believed that glaucoma is not primarily a disease, but what it is a symptom of no man knows, so far as I have been able to learn, and we will not find a cure before we know what we are curing. I have had more experience in treating glaucoma complicating traumatic conditions than in primary glaucoma; but I have had some experience with acute, sudden, fulminant glaucoma, chronic glaucoma and in cases long totally blind and so intensely painful that the eyes were usually removed. The plan of treatment has been subconjunctival injections. I do not know what brings about the cure, but the results have been very satisfactory. Whether it is due to circulatory or lymph stasis, whether it is due to hardness, or whether the hardness is simply one of the symptoms I don't know. With the injections of cyanide I do not use dionin but have used epinephrin (adrenalin), and a single injection is usually all that is necessary. In Darier's later book he speaks of using 1 to 1,000 iodate of soda. I have used that in some cases, and the results were certainly marvelous. Whether it removes the stasis I don't know, or whether the continued pressure causes the emptying of the eyeball, I don't know, but the lid swells up and the pressure continues several days. One patient was a prominent attorney in the 60's who was seized with a fulminant attack of glaucoma in the night and did not know that he had lost his sight until the next day. Under profuse purging by salines and mydriatics, eserine, etc., in twenty-four hours the violent pain had left but the eye was totally blind. I gave the injection. It is horribly painful, but in thirty minutes the pain had ceased and he went back to his office. He never had any pain afterward. In the course of two or three days vision was restored; the swelling remained; there was some diplopia, but the eye was absolutely restored without a vestige of effect. In some of these old totally blind glaucomas I have seen the pain stop and the eyeball stay hard as wood. Likewise in chronic glaucoma it seems to be serving, as far as I have been able to use it. It does better than other measures.

A Member: What is the strength?

Dr. Jones: 1 to 1500 of the cyanid and 1 to 1,000 of

the iodate, using 30 drops. The solution very soon decomposes into iodine and something else and must be made fresh.

Dr. Adolf Alt, St. Louis: After Dr. Schoenberg's first paper had appeared in the March 1913 number of Knapp's Archives I have repeatedly taken occasion to verify his statement that leaving the tonometer for a certain number of seconds on the cornea will reduce the intraocular pressure. This certainly occurs and I had formerly accused the holocain solution, used for the production of the local anaesthesia, of this phenomenon. Dr. Schoenberg, it seems correctly, attributes it to the influence which the weight of the tonometer exerts on what he very appropriately terms the ocular drainage. This drainage, which in a normal eye goes on continuously,—and it is impossible to conceive how Weiss could come to a contrary view—takes place by means of preformed channels. Dr. Schoenberg refrains from stating what he thinks of the nature of these channels of drainage. It is generally accepted that the main channel is by way of Fontana's spaces into Schlemm's canal (Leber's plexus) and in the venous circulation, while Benoit and Nuel have by their experiments made it almost certain that the iris and, perhaps, the anterior part of the ciliary body too, must be considered as drainage channels. According to this generally accepted opinion the drainage takes place solely into the venous circulation. I should not recall this to you, had not Leboeueq in the Bulletin de la Societe Belge d'Ophthalmologie of April 1913, published a series of experiments, by the results of which he considers it proven that the drainage of the anterior and posterior chambers takes place by means of the *lymph* vessels accompanying the veins and is distinctly separated from the drainage of the posterior parts of the eyes, that is, the vitreous body and the inner layers of the retina. These parts are drained by the lymph vessels accompanying the veins of the optic nerve, then of the central vein, and, finally, of the ophthalmic vein. The choroid is drained into the suprachoroidal space and from there by means of the lymph sheaths of the vorticeous veins.

Thus, whether these findings prove to be correct or not, our seemingly well established knowledge about the manner of ocular drainage is suddenly assailed again.

It was well, therefore, that Dr. Schoenberg avoided all pitfalls, by speaking of the channels of drainage without naming them.

That the ocular drainage must depend on the patency of these innominate channels, seems undisputable. It naturally follows that anything interfering with this normal ocular drainage must lead to an increase in the intraocular pressure, and it is rather astonishing that Dr. Schoneburg formed that iritis in rabbits did not seem to influence the drainage.

Dr. Schoenberg's experiments have led him to doubt that the intraocular pressure is influenced by any reflex action or harmonic action from distant organs. It seems to me that these experiments are the least conclusive in his series.

Although his experiments regarding the action of the extrinsic muscles on the intraocular pressure cannot be called altogether conclusive, it seems impossible to conceive that the action of these muscles should not exert any influence on the intraocular pressure.

Interesting and instructive as all the experiments are which Dr. Schoenberg has described, those referring to the relation of drainage to the intraocular pressure and especially to eyes which are suspected of a tendency to glaucoma are of decided practical value. The fact which he has elicited that a reduced rate of drainage may mean a latent glaucoma, although the intraocular pressure may be below 26 mm. Hg., seems to be especially so. Dr. Schoenberg realizes and has expressed it in his paper, that a great many more such experiments will have to be made to establish his results on a firmer basis, but it seems to me what he has already learned and taught us is of decided value.

I suppose, not all of us will go so far as Dr. Schoenberg does in his conclusions when, while looking upon all operative measures employed to secure a continuous drainage in glaucomatous eyes as purely palliative measures, he calls them not rational. It seems that this sounds, perhaps, a little different from what he really means.

That the increase of the intraocular pressure is not the gist of the disease (glaucoma) and that even so-called primary glaucoma must be looked upon as a symptom consequent on some as yet hitherto hidden affection, I do not doubt is the general opinion. Yet, while treating symptoms is not the most scientific way of managing disease, it may be, and in glaucoma, until we know more about it, it is as rational to interfere surgically in order to relieve the pressure and its dire

consequences, as are many similar measures in general surgery.

Of course, when the primary cause is once known this must be taken care of, and yet, even then, it may still be, perhaps, a very rational procedure to quickly establish a reduction of the intraocular pressure. It seems from Uribe Troncoso's studies and the findings in acute glaucoma thus far only seen by a few workers in ocular pathology that the aqueous humor in such cases is differently constituted from the norm. Its source, of course, is the blood. Does it not seem rational then to hope that some day, perhaps, the study of the chemistry of the blood may give us an explanation of what is the real cause of glaucoma? I am the more confident of such a result since I have in a number of cases in which an operation was refused seen a very gratifying mitigation of all symptoms by the exhibition of calcium chlorid as recommended by D. L. Weekers (*LaClinique Ophthalmologique*, June 1912).

It seems to me that Dr. Schoenberg deserves our thanks and praise for the work he has done and that we may expect much good to come from further investigations and the application of his methods in our work.

Dr. L. Webster Fox, Philadelphia: Even in the large experience of the East, where we see a great many cases, not any one of us sees many cases of Buphthalmos. I have seen probably five or six cases. I have found that it is a congenital defect, prenatal in its origin, in which usually at about the end of the third month there is a lack of development in the anterior part of the eye; the canal of Schlemm is absent and the result is an overdevelopment of the organ due to intraocular pressure and elasticity of the tissues whereby they are enlarged and stretched to an inordinate degree, producing buphthalmos, dropsy of the eyeball, or the "Eye of Juno." I have tried various methods of treatment including iridectomy and have felt that anterior and posterior sclerotomy have given me the best results but they have failed and the eye has shrunk. In the last case in which the patient is still in the hospital I of course did not perform that operation but have tried the operation employed by Dr. Spratt in the cases he has demonstrated. I believe that is the operation for this dread disease of childhood and will give these infants a hope of sight. I am led to this belief by my experience in the last

two years with operations for glaucoma. Like Dr. Jones I do not know why we have these glaucomas. In a paper by myself and a colleague read before the Colorado Medical Society we stated that in many of these cases of glaucoma we found an interstitial nephritis. We had not only an increase of blood pressure, but an increased intra-ocular pressure. A few years ago when Treacher Collins was in this country we had a case with high blood-pressure and also a high degree of intra-ocular pressure in a case of acute glaucoma. This patient had nearly 100 mm. pressure with the Schiötz tonometer. The eye was hard as stone. This was a second attack. The patient had been operated on by a clever operator, and not knowing then what we know now by high pressure, attempted an iridectomy and had what any man would have had, a gush of vitreous and hemorrhage and the destruction of the eyeball, necessitating enucleation. Taking that as an example I tried to reduce the blood-pressure. She was bled, with the sphygmomanometer applied, and the pressure was reduced from 275 to 150 and was given eserine every half hour for twenty-four hours, with no result from the eserine until the blood-pressure was reduced, when we got the effect of the mydriatic. Then we were able to perform an iridectomy with a satisfactory result.

I wish to speak in the highest terms of the operation of Elliott. If it does as much good as in the little child we have seen here today how much good we can accomplish in the many cases coming to us. Or we can use the operation of LeCount as Dr. Risely does. I feel that LaGrange has accomplished the same thing in his operation for the skilled operation, the man who has many operations. The man who has few operations cannot do it as well as one with a great deal of experience. I believe the Elliott operation is the one for the majority of operating surgeons. In the first place you are safe with the trephine as modified from the von Hippel instrument. The trephine as suggested by Sidney Stevenson and by Elliott in my hands is not as safe. I have had trouble. Many cases I have had have been of blind eyes and I was feeling my way to point out which was the better instrument, and I found that the Elliott Trephine, the Maddox or any English trephine was not as safe as the von Hippel instrument. We can only go to a certain depth and only do

a certain amount of damage, so to speak, if it goes wrong. By performing the operation as Elliott in his last book has described it, and then, using the trephine well into the anterior chamber, we have succeeded in an operation that I think is the most wonderful of all modern operations, because it gives us power over a disease which we all approach with fear and trembling.

Dr. John Oliver McReynolds, Dallas, Tex.: We all appreciate that much work must yet be done along the line of ascertaining the causes of these conditions, but it would be unwise for the section on ophthalmalmology to place itself on record as being willing to wait until we have discovered the final cause of these conditions before we begin to provide some amelioration for the patient. The discussion has then, to some extent at least, opened up the question of treatment. I would be very glad if Dr. Sattler, in closing the discussion, would give us something of his personal experience with the method of Professor Martin Fischer. Immediately after the presentation of his paper I applied his theory, but not with very satisfactory results. I never did any harm by it, but never accomplished much good. We have all recognized, as Dr. Schoenberg has told us, the influence of pressure in reducing the intra-ocular pressure, not only in the normal but in the glaucomatous eye; but we all have to come back to operative procedures. Two years ago I had the pleasure of witnessing the work of Priestly, Smith and Parker before the British Medical Association. Fully one half the time was devoted to this subject, and Priestly Smith said we would have to write over again the books on glaucoma, which means that we have made some progress.

With regard to the Elliott operation, I consider his flap as beyond criticism. More recently I have been able to make a substitute for his trephine operation. It is a special method of making a sclerotomy and I hesitate to present anything with the claim of being original. Make the flap according to Elliott's method; then take a sharp-pointed, curved needle armed with a small thread and insert it in the sclera posterior to the visible part of the cornea. Then include in the grasp of the needle 1.5 mm. of scleral tissue. Then with a sharp knife of any description, beginning away from the cornea, exerting gentle traction on the thread, you can ring out a

section of the sclera of any size or shape, carrying it forward into the cornea and emptying the anterior chamber, if you desire. It is thoroughly under your control and has this advantage over the trephine. In manipulating the trephine, if the eye is at all soft, the further prosecution of the work is attended with difficulty, but when the sclera is secured by the thread you can still succeed in excising this little portion of the sclera. I have practiced this in genuine cases of buphthalmos and in glaucoma, acute and chronic, and so far they have been satisfactory.

Dr. Allen Greenwood, Boston: I cannot help feeling that acute and chronic glaucoma are practically almost one and the same disease. I think any one of you has had the experience that a simple chronic glaucoma, under some circumstances of mental strain, has changed to the acute.

I believe the trephine operation is one that has come to stay, but having commenced five years ago with the LaGrange operation I have continued it. During the five years I have operated on twenty-five patients. Three years ago at the request of some of the gentlemen from St. Louis I operated on a patient before the section at the hospital in St. Louis, and I have been informed that the patient still retains the vision after the operation. In the twenty-five LaGrange operation of five years or less standing—some perhaps within two or three months—I have seen one eye lost. The majority of the patients who have had the LaGrange operation today have a better field of vision than they had before the operation was performed. It seems to me that is one of the crucial tests of the advantage of a LaGrange or a trephining operation. You perform it to obtain the filtering cicatrix. Most of these patients today show just about the limbus a sort of boggy condition of the conjunctiva. It looks sort of honeycombed, and we know that these patients are seeing and using their eyes in almost a normal manner.

With regard to the use of miotics, in any case of chronic glaucoma where the field of vision or the vision itself can be retained, where it is in good condition, if the patient has previously lost one eye, I very seldom operate unless the vision is going down, as was the case of the patient in St. Louis who had lost one eye and the other was going.

Dr. Walter R. Parker, Detroit: I have always been in-

terested in the possibility of anterior and posterior filtration as spoken of by Dr. Alt. All of us have seen glaucomas in which our iridectomies have entirely failed. It seems to me there is a possibility of glaucoma being a posterior filtration disturbance, which is manifested by a very shallow anterior chamber which would not be helped in any way by an iridectomy. On the other hand, a glaucoma that is dependent on obstruction of the anterior filtration channels would have some chamber left, in fact, be nearly normal, with considerable rise in tension: in these cases I find iridectomy did better. This is a speculative remark. I have not tabulated my cases on that point. We know little about the etiology anyway and I think in determining whether an iridectomy will help or not the deeper the chamber the better are the chances of benefit, even though the tension is increased more in the case with the shallow chamber due to the obstruction of the posterior filtration channel pushing the lens forward.

I have had experience with the Elliott trephine in twenty-three cases. All but three had the tension permanently diminished. In three cases I failed and in each of the three failures there were some inflammatory symptoms. Fortunately they were blind eyes and no damage was done as vision was lost. While the Elliott operation is the operation of choice I think it would be limited to the non-inflammatory cases. In two cases of buphthalmos a double iridectomy was done in one and failed. In the second it decreased the tension. The operation was done again. The tension was reduced from 70 and 74 to 30 and 34, respectively. Whether there will be permanent benefit I am unable to say.

Dr. S. D. Risley, Philadelphia: I should like to have Dr. Sattler tell us in his closing discussion whether there is any clinical method by which the probability of the claims of Fischer to the existing acidosis of the tissues may be demonstrated?

Dr. Lucien Howe, Buffalo: For those who may be interested in the subject it may be worth while to mention in regard to congenital manifestations that there is a German book that is to be translated very soon. I have never seen the subject presented so well as in that book. It relates to buphthalmos and anophthalmos as well as cases of ophthalmos in which there is a coloboma.

Dr. Schoenberg's paper is excellent, and I want to call attention to the great value of careful investigations of this sort and its superiority over clinical reports.

Dr. G. C. Savage, Nashville: My understanding is that Dr. Sattler will say that Dr. Fischer is receding from his original teaching. If that is true I regret it very much. I want to use as an illustration of receding from a truth, a fact. Brown Sequard, as everybody knows, was a strong advocate of the crossing of the nerve fibers from one side of the head to the other. I myself heard him try to destroy that theory, and it was a truth that he was trying to destroy. What we have heard here is a demonstration of the condition of the eye which predisposes to glaucoma. Let us fight our way into the daylight concerning glaucoma, and let me beg of you, Dr. Sattler, to call Fischer to stick to his last, because he is right.

The injection of the iodate of sodium I have never done, but have often injected citrate of sodium. I turn from that tremblingly to operative procedure, sometimes the trephine and sometimes iridectomy. In almost every case in which I have turned from the injection I have regretted the turning. But if, in addition to the injections, we can put something into the circulation that will help us to cure our cases, let us do it. I am treating now a case of hemorrhagic glaucoma, and I venture to say that Dr. Risley would not operate on such a case for any consideration whatever. I treated the patient with eseriu until she was losing her vision, and I gave the poor woman who was dependent on her daily labor for her subsistence, injections of sodium citrate once every week in each eye. Vision is almost normal in one eye and rapidly gaining in the other and she is at work every day, even on the days of the injection. Dr. Alt, I want to thank you from the bottom of my heart for the suggestion of injections of calcium chlorid.

Dr. Jesse S. Wyler, Cincinnati: I should like to make a few remarks on Dr. Fischer's theory. Dr. Reubens of Heidelberg has studied Fischer's theory and said he would like to work out three questions. The first was, what part of the enucleated eye takes part in the colloid swelling. We all know that the enucleated eye does swell. He found by swelling up the eyes of rabbits and human eyes and examining them, that the cornea and sclera partook in the edema. Then he asked the

question. How is the tension raised when the cornea and sclera have an edema? He found that the size of the ball did not increase externally but that the swelling took place inwardly, so that the sclera was increased in thickness internally and the area of the interior of the eyeball was decreased, the exterior remaining the same, and the contents remaining the same, the tension was raised. The third question was, Does this theory work out in living eyes the same as in enucleated eyes? He took a series of rabbits and injected subconjunctivally from 1 to 10 per cent solution of hydrochloric acid which produced a great increat in tension: in some 170 mm. He then reduced the tension by giving subconjunctival injections of sodium citrate, 5 per cent. Then he said, as this worked in the laboratory he should like to try it on human beings. But, as so often happens, laboratory and clinical methods do not agree, and he found every time he used the sodium citrate, with the tonometer that the tension was not reduced. I personally tried it in eight glaucoma cases, three of the chronic and two of the simplex variety. In none was the tension decreased; in fact, it was raised 5 to 10 mm. after the injection. In regard to blood-pressure, Feder in Virchows Archives published the results of work done in Fuchs' clinic. He took fifty cases of senile cataract and took the blood-pressure with the Rivi Rocci instrument: then he took fifty glaucoma cases and found the pressure in both about the same. He could not find the slightest basis for the theory that increased blood-pressure had anything to do with the causation of glaucoma.

Dr. Oscar Wilkinson, Washington, D. C.: In regard to treatment, I think high blood-pressure has a great deal to do with it. In my cases of chronic glaucoma I invariably try to reduce the blood-pressure, and, in doing so, I believe the eserine and miotics have a better effect. I get better vision and an increased field of vision. I first give them small doses of calomel and the hyposulphite of soda. Another remedy which I give this class of cases is two or three grains of mercuric chlorid in saturated solution of potassium iodid, which gives the biniodid of mercury. The mercury is an antiseptic and the iodid gives an alterative effect. I consider diet a very important part of the handling of these cases. I may take them off of meats except fish and chicken or game. Even the butter-milk diet is good. When I have controlled the diet and given

an alternative I can in a measure control the chronic cases of glaucoma, and I think it has a direct influence on the case—as much as eserine itself. I consider the trephine operation the ideal for the ordinary practitioner. I have had experience in several cases, and in one of these in particular, in which there was high tension due to an attenuated cornea, the tension was reduced to normal and the size of the eye was materially reduced.

Dr. W. H. Wilder, Chicago: The paper of Dr. Schoenberg seems valuable to me in that it helps to confirm me in my belief that in glaucoma we are dealing with a condition in which there is some peculiar obliteration of the channels of circulation, and not those channels which allow the blood to enter the eye, but those which allow the fluids to egress from the eye, and we have a clue in this very subject to hydrophthalmos, which we know in some cases to be due to obliteration of these spaces. I believe that future discovery will be along this line in determining what vessels are obliterated. Now it cannot be that every one is liable to glaucoma; it is comparatively infrequent, and we must realize that only certain individuals are susceptible to it, and these have, for some reason, some peculiar change in the tissues that render them liable, with a proper exciting cause, to an attack of glaucoma. Hence this paper of Dr. Schoenberg is of peculiar value. It not only helps to confirm us in the idea that there is some condition in the eye which prevents the egress of fluid, but it seems to me it also gives us a hint that we will get some practical value out of the testing of the eye with the tonometer. All we can hope to do with the operative procedures is to furnish a little trap-door, or with the LaGrange operation furnish a place for the fluids to escape; but we are not reaching the basis of the trouble at all. I was hopeful that in the work of Fischer we had something that we could pin our faith to. In the Illinois Eye and Ear Infirmary we tried the injections of sodium nitrate but could not see that we got any benefit, though we tried it in the acute, chronic and simple forms. It merely forces one to the conclusion that there are certain individuals who have a certain idiosyncrasy to a certain type of tissue which all the worry and anxiety would not produce in another person.

Dr. Edward Jackson, Denver: We appreciate especially

Dr. Schoenberg's observation that retarded drainage may be of real diagnostic value. I think we shall soon come to realize that the absolute height of the intra-ocular tension does not furnish a satisfactory basis for the presence or absence of glaucoma. I for a long time have felt that Priestly Smith's definition that glaucoma is increased intra-ocular tension plus causes and effects, is the best definition; but I feel that this clinical entity which is something more than increased tension and increased hardness of the eyeball can exist outside of that clinical condition that we characterize as glaucoma. I have under observation a patient whom I have had the opportunity of watching for about seven years in whom one eye is entirely blind and both present and typical glaucoma cups, and only once in that time have I been convinced that the tension was above normal, and since I have used Gradle's modification of Schiötz's tonometer I have never found it above normal; but there is not the slightest question that the man has glaucoma. On the other hand, I have within the last year observed three cases in young women in whom the intra-ocular tension arose to about 50 mm.—one about 60 mm.—with the clinical symptoms of an acute, mild attack of glaucoma, some redness, very distinct pain and marked dilation of the pupil. In two of these cases it followed needling for congenital cataract. The other was a case, probably, of tuberculous chorioiditis at the macula. All of these patients without any special treatment for glaucoma have gone back to normal condition, although when I first found them the tonometer was registering something like 60 mm. of mercury and I was very much afraid they were starting on a course of glaucoma. I am confident, therefore, that the height of the intra-ocular tension at the time of observation, certainly, and I think throughout the case, is not an indication that can be wholly relied on as to the existence of a disease that we know as glaucoma, and that therefore the symptom of diminished intraocular drainage may be one of even greater difference.

Dr. Charles N. Spatt, Minneapolis: I should like to say a word about the little girl who was exhibited here this morning. She is six years old; the father and mother are second cousins. At the age of 3 or 4 months it was noted that there was something wrong with the eyes, which were sensitive to light. Only within the last two years increase in

the size of the globe has been particularly noted and photophobia has been marked. If these children are let go they will become blind. We took the tension of the left (blind) eye of one patient, the tension being plus 1. Trephining was performed, it being followed by a gush of yellowish aqueous that came out of the top of the trephine. The patient moved during the anesthetic and lost some of the vitreous. The patient struggled considerably after the operation and the dressings were stained with blood that evening three hours after the operation: in other words, there was considerable hemorrhage. In the second eye the vision was equal to reading large newspaper print at 4 or 5 inches. We did a paracentesis to reduce the tension. It remained down and forty-eight hours afterward trephining was done on that eye. The tension has been much better than before the operation, she has had much less pain, she sleeps better, is better natured and the eyes have not been as red. Regarding vision it is difficult to say. She has not as much photophobia. The condition confronts us in these cases, and we must do something. Irridectomy, as has been said, is not a safe procedure, and trephining, with a preliminary paracentesis, is the only legitimate thing we can do. I had a similar experience with an old lady with an iridectomy eighteen years ago. I did a trephining. The eye was lost by iridocyclitis. Reducing the tension by blood-letting and reducing the pressure may be all right, but it seems to be a little in the way of the Chinese method of making roast pig by burning the house down.

Dr. Robert Sattler, Cincinnati: From my point of view we must come to a distinct understanding as to the diagnosis, and the cases may be divided into two clinical varieties: one with inflammatory symptoms and the other which occurs late in life with no inflammatory symptoms in which secondary degenerations become possible. In the latter cases when this stage is reached all surgical treatment is more or less unsatisfactory. From my experience there is no operation so beneficial to the patient if the diagnosis is definitely made of acute inflammatory glaucoma, preceded or not preceded by prodromal symptoms, as iridectomy according to the old classic method of von Graefe, with the spear incision, with or without flap; or else, as a substitute for it, the LaGrange operation. My experience with the latter has been limited because I rely

mainly on the iridectomy. With the trephine it has not been so satisfactory. It is probable that I single out the cases; that is, keep my groups as separate as possible. If I have a confirmed case of inflammatory glaucoma I am very careful about the operation I use, reserving enucleation if it has to be done, rather than subject the patient to an operation which would sooner or later result in enucleation any way. In that way I am perhaps a little overcautious in the surgical treatment of these cases.

I should like to correct a statement Dr. Savage made. We are doing all we can to demonstrate to ourselves the value of the Fischer treatment. Even though the subconjunctival injections had failed in our hands we are nevertheless resorting to the treatment which Fischer proposes, and that is to bring about as quickly as possible alkalinity of the blood and urine by giving rectal injections of sodium citrate. That plan of treatment is as active and as much in favor with us as it was some time ago. The subconjunctival injections Fischer does not advise, though he has not abandoned them. He advises the internal and rectal treatment, and the preparation of calcium is the one he insists on. We hardly dare to get away from the miotics in addition to the treatment, even in cases under Fischer's supervision and direction.

Dr. Mark J. Schoenbuerg, New York: I expected more criticism. Dr. Alt said that my experiments on the reflex action or relation between distant organs and the intra-ocular pressure were not conclusive. None of my experiments are conclusive. I came here with only a very incomplete record of certain series of experiments. I only tried to stimulate work along the same line, and whether we should continue work along the same lines. Dr. Alt says we cannot give up local treatment. I did not say anything about giving it up. I said it is not rational, and it is not. It is like stripping the kidney of its capsule. We cannot cure nephritis in that way; neither can we cure glaucoma by any kind of an operation on the eyeball. That is my belief. The present tendency to devise operations for the relief of tension is not rational. The sign of glaucoma is not increase in tension, just as high blood-pressure is not a sign of arteriosclerosis.

Dr. William Zentmayer, Philadelphia: The cumulative evidence we now have that acute glaucoma is the failure of

Schlemm's canal I think will be of assistance in pointing out the pathogeny of glaucoma. Of course it is well recognized that the disease described in my paper is true glaucoma. The only reason the symptoms are different is, the difference in the tissues of the immature and the mature eye. I want to caution against operation in these cases. The reason for writing the paper was the disastrous result in such a case. I tried to do an iridectomy and lost the eye at the time of the operation. The vitreous, lens and all extruded through the wound. The child returned to the city later and I passed it over to an assistant who tried to do a cyclodialysis.

In regard to Dr. Spratt's cases, those eyes may be arrested. A great many cases are on record in which the process was naturally arrested. This is explained by Treacher Collins on the ground that the trouble is a persistence of the ligamentum pectinatum in the angle of the anterior chamber, and these attachments are broken loose as the eyes grow and have a natural cure.

The LaGrange operation I believe is in many respects superior to the trephine. The cicatrix is larger, is better placed, so as to open the suprachorioidal space better, but is not so simple as the trephine operation and should not be attempted in this type of glaucoma.

Equivalent Values in Spectacle Lenses.

BY WILLIAM E. SHAHAN, ST. LOUIS.

Abst.—Advantages of meniscus lenses are largely lost because their effective values differ from those of trial-case lenses. Compensatory computations for these discrepancies can be made by calculating the advancement of the second gaussian points and the posterior poles of the lenses from the planes of their rims, and finding the corresponding equivalent dioptric values. A number of points can be calculated for the equivalent values of each lens of given posterior curvature and the result platted on coordinate paper. From this chart, or series of graphs, the values of the two surfaces of any meniscus lens of value equivalent to that of any given trial-case lens can be read off and the prescription written without any laborious computation.

A chart was displayed.

A member asked the reason for having this chart worked up.

Dr. William E. Shahan, St. Louis: I was induced to work this out on finding that the conventional meniscus lenses give overcorrection, so that the power of the meniscus lens must be reduced. The optician does not understand how to do this, so that these tables were worked out.

DISCUSSION. William R. Murray, Minneapolis, Minn.: In estimating the equivalent value of a meniscus lens, as compared to a biconvex lens of a given diopter strength, it is necessary that we take into consideration the relative position of the plane of the rim of the lenses in reference to the apex of the cornea. In practice, if the rim of a plus meniscus lens of 10.00 D, having a posterior surface of -10.00 D, be placed in the same plane as the rim of a plus 10.00 D, biconvex lens, as illustrated by the essayist, there will be an over-correction amounting to about 2 D. Also if a -10.00 D sphere be placed against the anterior convex surface of this meniscus it will neutralize it, as the posterior principal point of the biconcave sphere very nearly coincides with the second principal point of the meniscus. Theoretically, the two lenses, a plus 10.00 D biconvex and a plus 10.00 D meniscus, are of equivalent strength, as the focal length is the same in both lenses. It is a question then of the relative position of the two lenses, in reference to the eye, as to whether they are equivalent in practice. As we can not bring the meniscus lens near enough to the surface of the cornea to make the second principal point coincide with the second principal point of the biconvex, we find that, in practice, the two lenses are not equivalent and some method of computation is necessary whereby we can determine the equivalent value of a meniscus lens in the position which it will occupy in reference to the eye, and we are indebted to the essayist for his accurate method of computing such equivalent values.

The over-correction which would result if a plus 10.00 meniscus were substituted for a plus 10.00 biconvex lens, with the rim of the lenses in the same plane, would be partially eliminated, if the plane of the rim of the meniscus is brought near enough to the eye to allow the apex of the posterior surface of the meniscus to occupy about the same plane as the apex of the posterior surface of the biconvex. The estimation

of this distance is somewhat arbitrary, but is a factor that must be taken into consideration in estimating the equivalent values of a meniscus and a biconvex or plano-convex lens.

The essayist has referred to two practical points to be considered in determining the equivalent value of a meniscus as compared with a double convex lens; namely, the distance between the apex of the posterior surface and the plane of the rim of the lens, and the distance between the apex of the posterior surface and the second principal point. The first point, in practice, can be largely eliminated, owing to our being able to bring the plane of the rim of a meniscus of high diopter strength considerably nearer the eye than the plane of the rim of a biconvex of the same strength. The second point becomes one of practical importance, as the focal length of a lens is measured by the distance between the second principal point and the second principal focus and in a meniscus lens of high diopter strength, as compared with a biconvex lens of the same diopter strength, this is of practical value. In a plus meniscus lens of 10.00 D, with a posterior surface of -11.00 , the second principal point lies near the anterior surface of the lens and outside of the lens; in a plus biconvex lens of 10.00 D, the second principal point is within the lens and posterior to the plane of the rim of the lens. When the meniscus is brought into its proper position, in reference to the second principal point will still be anterior to the second principal point of the biconvex lens, in its proper position before the eye, and this difference will about equal, approximately, the thickness of the biconvex lens. This difference makes it necessary to make a certain allowance in estimating the equivalent value of the meniscus lens and any method of computation by which this equivalent value can be furnished for ready and quick reference is of practical value.

There is no doubt but that, in many cases, the meniscus lens offers many advantages over the biconvex or plano-convex lens, and in order to obtain the maximum advantages of a meniscus in certain cases, as in cataract lenses, we should be able to prescribe the degree of concavity of the posterior surface. In this country the opticians are furnished with plus menisci lenses having a posterior surface of minus 1.25 and minus 6.00. Plus menisci lenses having a posterior surface of minus 9.00 may be obtained but at a considerable increase

in cost, while if we wish to prescribe a lens having a posterior surface of minus 10.00 or minus 11.00 it requires special grinding at much greater cost.

This is somewhat of a disadvantage, at present, to our prescribing such lenses and means should be devised whereby menisci lenses of the most suitable degree of concavity can be obtained at a reasonable cost.

Dr. F. Park Lewis, Buffalo. This paper brings out a matter of great importance, and explains several things I have not been able to realize before. It is quite obvious when brought out in this clear way that the difference between the bifocal lens and the meniscus lens must in the higher degrees affect the values. Why might we not have in our test cases menisci lenses instead of the double convex lenses? Instead of being obliged to approximate as we have to do even with such an accurate chart as Dr. Shahan has prepared? Why should we not have the possibility of making precise prescriptions. Again and again I have had occasion to discuss with my optician the question of whether my trial lenses and the lenses which he made were alike, having just this discrepancy that the doctor has brought out. Seemingly in focal tests they were alike, but they did not produce the same results with the patients that I obtained with my test lenses. The reason, as now appears, is evident.

A second point is this. If a discrepancy as great as two diopters occurs in my fixing lens, how are we going to adjust these discrepancies on the way down which vary merely a fraction from the exact lenses made by the opticians? That is to say, we cannot give a $19\frac{1}{4}$ or $19\frac{1}{2}$ on one side, and if the chart gives something only approximate that we are obliged to have we will be obliged to approximate our result. Therefore it seems to me of a great deal of importance that the refractionist and the optician should get together and if possible have trial lenses that can be absolutely reproduced by the maker. Dr. Shahan's paper, it seems to me, answers Dr. Lancaster's claim made yesterday of the necessity of mathematics in the training for ophthalmologists.

Dr. Walter Baer Weidler, New York: I should like to ask Dr. Shahan whether this applies only to the higher degrees of lenses, or whether the condition which he found with his patients was also present with the lower degrees of refraction.

tion? In my own personal experience I had attempted to wear Toric lenses for some time to see what the additional values were as claimed by the optical men. and I found that I was very uncomfortable and absolutely unable to wear them. They had the very distinct advantage of giving a greater field of vision. On account of my own discomfort I have been averse to prescribing Toric lenses.

Dr. George H. Price, Nashville: There is a popular idea that toric lenses are by far the best, and the judgment is that this is true theoretically. Practically they fall far short of what we desire to have and patients are not infrequently disappointed and it is because of the very facts brought out in this paper today. • They are disappointed because the ratio of increase from the smaller or lower power to the higher power is rapid and this increase in the refractive capacity of the lens induces very marked symptoms. In my own case I had an irritation in my eyes and went to a drug store and bought a pair of colored glasses. They were toric, pressed. lenses. I noticed when I walked with them that everything seemed to be out of place—they were distorted—and induced nausea. That nausea would increase and I would have to take them off. After a while I could wear them. My experience in prescribing is that patients who have worn biconvex or plain lenses or simple myopic lenses when they put on toric lenses they come to you with a whole train of nervous symptoms not altogether easily explained. I have one patient now who had been accustomed to wear glasses for some years. She wanted toric lenses because of the increase of the field of vision; but it has taken her now nearly three months to adjust herself to the toric lenses. They are very low in value, the strongest being one diopter and the other one-half diopter. These symptoms present themselves, and I am glad the doctor worked the principle out. Not one man in ten thousand has time to work them out, and most of them wouldn't do anything but figure. It is a great advantage to have a chart from which one can estimate the lenses. The low powers are not so distressing as the high powers. I read with toric lenses at night and if I don't feel very well it makes me sick, though I do not have a high defect of vision. It is this constant draft on the nervous mechanism to adjust the lens to the eye itself that gives

the distressing reflex disturbances, and with this chart we can correct them.

Dr. J. A. Donovan, Butte: The Bausch and Lomb people furnish lenses with one refractive index and other makers of another and we get confused in the index of the lens we are using. Will this table give equal results whether we use one lens or the other? We are now using two normal standards in the indices of these lenses. Shall we have to have a table for each?

Dr. Walter B. Lancaster, Boston: It is not sufficient to have a lens of the correct strength; it must be the proper distance from the eye. And having calculated exactly the lens we want to use and prescribed it, the practical point is that when the patient comes in with that lens we must try it out in our offices and see whether slight changes in the distance from the eye are needed or whether putting it $\frac{1}{4}$ or $\frac{1}{2}$ or even $\frac{1}{8}$ of a diopter in front will improve things. If it does we have got either to change the prescription or slightly change the distance of the lens. In many cases we must slightly tilt the frame to get the best correction for astigmatism. The frame furnished by the optician will vary one or two or five degrees which can be corrected by slightly bending the frame.

Dr. William E. Shahan, St. Louis: In regard to the position of the lens from the eye, in all optical measurements it is necessary to obtain accurate results to have some point from which to make the measurements; so that in making the measurements it is best to have the trial lenses in the same position as that in which the finished lens will be. In that case these equations will take care of all variations in the position. Some one has spoken of the Goldstrup lenses. They have slight advantages over the meniscus lens but are more expensive and require time to get them.

Suggestions have been made as to using meniscus trial lenses. I think the result would be that we would get away from all standards. We would not know where we were. The ratio of the principal points and nodal points of meniscus trial lenses would be so different in relation to any cylinders in front of the eye that we would not know where we stood. I think the best trial lens is the plano-convex lens. Speaking of convex lenses, there is a difference in value where the lens is minus 20 behind and plus 20 in front.

With regard to the refractive index of the lens, it is necessary to know the refractive index of the lens you are using. This is based on the refractive index 52.25.

In the matter of adjusting and fitting toric lenses, I have not taken up the advantage or disadvantage of these lenses at all. But in practical experience with toric lenses, we have to use a great deal more care than with the other types. The center of the lens must be set accurately, otherwise the patient is looking from one side to the other of the center; he is getting a certain amount of astigmatism which he does not get with the plano-convex or double convex lens.

The center of the pupil on one side is a different distance from that on the other, otherwise the lenses which might have equal dioptric value might have unequal value and throw the patient into a condition of unequal refraction. That means that we have to employ a great deal more expertness in choosing our toric lenses. We have never done our duty to our patient until we have seen him with the finished lens and taken the vision through the center of the finished lens and also through the periphery of the finished lens and find out whether we have obtained exactly what we think we have obtained.

Another point was made as to the factors which produce this change. These are not only the advancement of the second principal point or pole of the lens, which is spoken of incorrectly in the paper; it is due not only to these two factors, but also to considerable absolute increase entirely independently of the position of the principal points. The lenses increase somewhat in focus. The poles of the lenses shorten. The meniscus is said to be nearer the eye in plano-convex lenses, and I have neglected the small quantity which tends to compensate for that distance.

The three next following papers were first read, and then discussed together.

Symposium on Trachoma. Trachoma, Its Prevalence and Control Among Immigrants.

JOHN McMULLEN, WASHINGTON, D. C.

Abst.—A chronic, communicable disease, often causing disastrous results. Diagnosis, prognosis, etc., is the most

troublesome subject with which the medical examiner of aliens has to deal. Classified in 1897 as a "dangerous contagious disease" by the federal government. Despite the fact that the steamship companies maintain an inspection service abroad, many hundreds of cases are found annually among immigrants, the majority of them from Russia, Italy, Austria-Hungary, Turkey (Armenia, Syria, etc.) and Greece. Any modification of the present classification by the government would mean the addition to our population of thousands of aliens suffering from trachoma whose emigration to this country is now prohibited. Trachoma is an important public-health problem.

Trachoma Among the Indians.

BY J. W. SCHERESCHEWSKY, WASHINGTON, D. C.

(Read by Dr. John W. Kerr, Washington, D. C.)

Abst.—Thirty-nine thousand Indians in the United States were examined with the result of finding that over 17 per cent. were suffering from trachoma. The incidence of the disease varied from over 70 per cent of the Indians examined in Oklahoma to 0.2 per cent of the Indians of New York state. The disease was found to be most prevalent among the inmates of Indian boarding-schools, and least prevalent among reservation Indians. All grades of the infection were seen. Its prevalence among Indians is due to their ignorance of hygiene and sanitation. The percentage of Indians suffering from visual defects due to trachoma is high, and the Indians are likely to prove a means for the wide-spread dissemination of trachoma in the west. Energetic efforts should be directed toward limiting the spread of trachoma among the Indians and attempting its eradication among the younger generation.

Trachoma Among the Mountaineers of Eastern Kentucky. Illustrated by Lantern Slides.

BY J. A. STUCKY, LEXINGTON, KY.

Abst.—The large increase in number and gravity of cases of trachoma coming to me from the mountains of eastern Kentucky in the past twenty-five years led me to make a trip of investigation on mule-back through five counties. 2. Description of the people (genuine Anglo-Saxons) and how they live. 3. Unmistakable evidence of the infectiousness and destructiveness of the disease. 4. Appalling number of cases with

destructive sequelae of trachoma (pannus-entropium-trichiasis) orneal ulceration with perforation and symblepharon. 5. The solution of the problem of eradicating the disease. 6. The Kentucky State Board of Health unable to adequately cope with the condition for financial reasons. 7. Result of semi-annual clinic held in April and September in connection with the Settlement School at Hindman, Knott County, Ky. 8. Lantern slides showing the people with trachoma, their homes and how clinics are conducted in the tent and cabin hospital.

DISCUSSION. Dr. Edgar S. Thompson, New York: The two main questions brought up by this very interesting group of papers are: First, the necessity of excluding immigrants with trachoma; second th management of the disease among the mountaineers of Kentucky and the Indians. It seems hardly necessary at this time to lay much stress on the advisability of excluding immigrants, its necessity has been so well shown; but I should like, in passing, to express by approval of the system of fines to the steamship companies and also of the care and thoroughness with which immigrants are examined at Ellis Island, in New York city.

Between July 1, 1911 and June 30, 1912, there were certified approximately 720 cases for trachoma. All of them were deported except 53, as to which it was ordered that an attempt be made to cure them. Of these 16 were cured, but the remaining ones have not yet yielded to treatment. Treatment is permitted only in cases where to deport would result in extreme hardship, as, for instance, where the immigrant has no one to go to on the other side. The present tendency of the department is to restrict to the lowest possible number those who shall be held for treatment, and as to all others to let the law take its course. Trachoma is classed by the Public Health Service as a dangerous contagious disease, and all who arrive with it may be deported forthwith.

It may interest you to know that in all cases where a competent medical examination abroad could have disclosed the existence of trachoma, the steamship company bringing the diseased immigrant is subject to a fine of \$100.

In 1902 there was no statute permitting the imposition of such a fine, and the proportion of immigrants who came with trachoma in those days was far greater than it is now. The conditions in the steerage quarters on some of the ships were

truly horrible, because the cases brought were bad ones and the diseased immigrants mingled freely with those who were not diseased and used the same towels. Of course, all such cases were deported, but the expenses of deportation being low were not sufficient to deter steamship companies from bringing people with trachoma. Their surgeons used to say as to many of these cases that they considered them to be conjunctivitis rather than trachoma, but such a confusion of the two diseases has occurred far less frequently since Congress permitted the imposition of the \$100 fine. Now we rarely see the very worst cases of trachoma, though there are still brought here many of the type in which the disease cannot be eradicated except through treatment extending over at least one year. Congress has been urged to increase the fine limit to \$200, so that steamship companies shall be deterred from bringing here any immigrants with trachoma.

One of the most vexing questions in connection with the exclusion of immigrants and the necessary hardship to individuals, is the question of what constitutes a dangerous case. With the pathology of trachoma in its present unsettled state, we should err on the side of safety, it seems to me, and exclude any cases of well-marked follicles, or at least place the case under compulsory treatment until it is cured. This brings me to say a word as to the perennial discussion as to the clinical diagnosis of trachoma follicles. Of course, this is a subject upon which it is impossible in all cases to be dogmatic, but my own feeling is, that the typical large ovoid follicle is of trachomatous origin in the vast majority of cases, and that the wide differences that we see in the course of different cases, where some run a comparatively mild course and others develop a severe pannus, depends mainly upon the amount of local tissue re-action present, which in turn may depend on constitutional tendencies, superimposed infections, etc. I therefore, would strongly endorse a point in Dr. McMullen's paper, in which he says in effect that a quiescent case may at some subsequent period develop conjunctival secretion, and become actively contagious and a serious menace to the community. I am willing to admit, of course, the condition of "Follicular Conjunctivitis," in which fine follicles are scattered all over the tarsus and retractor folds, for these cases have well-marked peculiarities, but as to the mild cases with

the pale oval follicle, I am inclined to the supposition that these are mild infections of true trachoma. The follicles of vernal catarrh and the other special forms of follicle have marked clinical characteristics. If such mild cases are to be admitted to the country their treatment must be compulsory. I am sure everyone is familiar with the fact, that except in rare instances such patients leave us before the cure is completed, if the case is at all protracted.

The treatment of the mountaineers and Indians must, of course, be accomplished in a different way, but is a no less serious question. I think everyone agrees that while trachoma is a disease which we expect more commonly to find in crowded cities, it is just as virulent in healthful country districts, where unsanitary conditions prevail. I should like to express my admiration for the manner in which Dr. Stucky has attacked the very difficult problem before him. It seems to me that the great need is, as he has pointed out, for some sort of hospital, or at least clinics in these out-of-the-way districts, where systematic and persistent treatment may finally eradicate the disease. And this applies equally to the problem in the case of the Indians. Trachoma in some of its phases is an exceedingly stubborn disease, prone to relapses and exacerbations, and constant supervision of almost every case is necessary. I am strongly in favor of early expression, for I believe that this has a direct bearing on the prevalence of pannus. This is denied in some quarters, where the presence of pannus is looked upon as placing the case in a somewhat different category from ordinary class of cases characterized by follicles. Certainly, however, we see vastly fewer cases of pannus in our New York clinics, since the time, some ten years ago, when an active campaign was started in the schools and expression of the early cases was done on a large scale. Finally, it seems to me that it is not worth while to limit our activities by the discussion of any especially fine pathological points. The important clinical facts we know, and our course and duty in the matter are both clear.

Dr. L. Webster Fox, Philadelphia: The paper which has been read by Dr. McMullen is excellent so far as it goes—although it might be construed as a plea for a continuation and rigid enforcement of the deportation clause of the immi-

gration law, which provides for the exclusion from admission to the United States of immigrants suffering from trachoma on the ground that it is a dangerous, contagious disease.

It has been shown by the author of the paper that the proportion of trachoma cases to the total of arriving aliens has considerably diminished in one year.

The only cheering ray of hope in this paper for the poor trachomatous immigrant is contained in the remark that although trachoma is very resistant to treatment, *it is curable*.

Without commenting on the merits or demerits of the restrictions and penalties of this part of the immigration law, I will relate my own experience with immigrants found, on their arrival at this port of Philadelphia, to be suffering from trachoma, with a view to show that such cases are not only curable, but that a radical cure can be effected within a reasonable period.

During the past year I operated upon 87 patients suffering from typical trachoma. Among this number 44 immigrants who were found to be suffering from trachoma, upon arriving in the United States, have been transferred across the river Delaware from the Detention Station at Gloucester to the Medico-Chirurgical Hospital in Philadelphia for prompt treatment of their condition by Dr. Oakley of the Marine Hospital Service. These cases would permit of no delay and I have therefore operated upon them by the method known as Grattage, which almost invariably brings about a radical cure within a very reasonable time. I have practised Grattage with great success and satisfaction from the time I saw it performed by Dr. Darier in Paris in 1892.

The operation requires, first of all, complete eversion of the lids and exposure of the trachomatous conjunctiva into every part of the cul-de-sac. This is easily effected by means of the Darier forceps, which resembles a catch dressing forceps with three pins on the male blade. The roughened, thickened, congested conjunctiva is next thoroughly scrubbed with a tooth brush dipped in a solution of bichlorid of mercury 1-2000. With a three bladed scarificator the whole of the palpebral conjunctiva is then scarified, and by means of gauze sponges it is rubbed until the whole of the palpebral surface of the lid is perfectly smooth. Although this seems to be a somewhat

formidable procedure, it is surprising how quickly under the use of antiphlogistic and cold applications the swelling subsides and the patient is cured of his trachoma.

All the 44 immigrants referred to were discharged as is shown by Dr. Oakley's official report. So radical is this method of treating such cases that recurrence of the trachoma is most unusual.

In addition to the grattage it is advisable in some cases to perform Burow's operation, or to excise the tarsus. So satisfactory have been the results obtained by this line of treatment that the individuals referred to, who had travelled many thousands of miles to join their friends and families in this country, are no longer a menace to the health of the community, and have been humanely saved from deportation. Possibly, as Dr. McMullen puts it, they had sold all their worldly goods to secure enough money for their passage, and what their fate might have been if they had been deported, can only be surmised.

Whatever I have said must not, however, be taken as expressing any desire that the vigilance of the emigration and immigration authorities on either side of the Atlantic should be relaxed.

When we investigate closely within our own borders, we realize the lamentable fact that very many cases of trachoma are to be found amongst the general population of the United States; and I can personally testify that Dr. McMullen has not exaggerated the prevalence of trachoma amongst the Indians in our own country. In Dr. Stucky's paper upon "Trachoma Among the Natives of the Mountains of Eastern Kentucky," we have further proof that that dreaded disease is to be found on the increase in that part of the state.

Surely it is time that some of the regulations and restrictions embodied in the immigration laws should be applied to cases of trachoma already existing in our midst.

In conclusion I have much pleasure in repeating the assurance that trachoma is *curable*.

DR. OAKLEY'S REPORT.

Forty-four cases trachoma sent to Medico-Chi. Hospital for treatment; four cases remaining June 3rd, 1913. Shortest stay in hospital, 9 days; longest stay in hospital, 25 days.

2 cases no record time in hospital.	
1 case in hospital 9 days	5 cases in hospital 18 days
2 cases in hospital 10 days	3 cases in hospital 19 days
1 case in hospital 12 days	1 case in hospital 20 days
3 cases in hospital 13 days	1 case in hospital 21 days
5 cases in hospital 14 days	1 case in hospital 23 days
2 cases in hospital 15 days	2 cases in hospital 24 days
4 cases in hospital 16 days	1 case in hospital 25 days
6 cases in hospital 17 days	—
—	14 cases
26	26 cases
	—
	40 cases released to date.
	June 3, 1913.

Dr. F. Park Lewis, Buffalo: The question naturally resolves itself into two parts—the protection of our ports from immigrants, and the protection of those of us who are within the country from those already infected. Four years ago I happened to be in Naples, and made some investigation as to the methods then used in preventing immigrants who had trachoma from attempting to leave Italy. I found that there were 5,000 people every year who were refused transportation by the steamship companies, so rigid were their efforts to keep trachomatous individuals out, knowing the penalty would be the transportation back again of those infected. I believe we need give little attention to the ports. The United States government is thoroughly alive to the need for protection from that source. The vital question is the determination of the localization of trachoma in the United States, and the further determination of whether these centers are broadening; and in regard to that there seems to be very little doubt. In every school for the blind in the United States except that of Arkansas the chief cause of blindness is ophthalmia neonatorum. In Arkansas the chief cause is trachoma. The eastern and southern portions of the state are almost free. In the Arkansas school for the blind there were 199 white and 28 colored pupils enrolled. The number of cases of blindness from trachoma was 115, which demonstrates that in Arkansas and in adjacent Missouri there is an enormous amount of active, acute trachoma, a thing of great importance to determine. In the second place, we are finding in little

localities acute cases manifesting themselves. A few years ago it was unusual in western New York to find trachoma. Dr. Kerr said that trachoma among the Indians in New York was two per cent. and yet I think it is the experience in western New York among the ophthalmologists that gradually new, acute cases are appearing from time to time. Now we are confronted with a very important question—not merely an academic one. What are we going to do to protect ourselves from a disease so widespread as this? Several years ago I had the pleasure of going with Dr. Stucky over some of the work done there, and I appreciated this fact which has since become evident. In Oklahoma the infection among the Indians is rapidly spreading to the white populations. The white schools have already become infected, as I think Dr. Kerr has shown, to the extent of more than 25 per cent.

It would seem as though the first thing to do is to have officially reported to the health departments of the cities or states every active case of trachoma. We can then determine something as to the amount that exists. Until this is done we are helpless, as with any other infectious disease, such as small-pox, which is scattered and over which we have no control.

In the second place our treatment of these conditions consists of moral or hospital or dispensary care for a very large proportion of cases. After these acute infectious cases have appeared at the hospitals and dispensaries they go back into the homes which again act as sources of infection. Until we can have the help of the social services of various localities in following the people into their homes and using measures to prevent further infection we are not going to control a disease as important as this.

I want to call attention to the fact that in the report to the House of Delegates the Committee on the Prevention of Blindness makes a series of recommendations as to what should be done in regard to the protection of the public against trachoma.

Dr. S. D. Risley, Philadelphia: Viewed from the sociologic aspect I recall the fact that only a week or ten days ago I noticed in a newspaper that the strikers in the Kanawha region of West Virginia were being replaced by mountaineers from Kentucky, and I should like to ask Dr. Stucky whether he knows anything about whether these mountaineers may be from the district infected with trachoma?

Dr. J. W. Stucky, Lexington: I think not.

Dr. S. D. Risley: If so I think it is important from the hygienic standpoint to control the matter, since it might spread from them into the mountains of West Virginia and thence into our populations throughout that entire region.

Dr. Gilbert E. Searman, Milwaukee: I want to express my appreciation of the wonderful work Dr. Stucky has done. This kind of work and this kind of a situation is a moving illustration of the fact that the handling of a dangerous contagious disease is a matter for state or national government. It would of course be foolish to expect a few individuals, led even by as enthusiastic a man as Dr. Stucky and the organization in Kentucky, to cope with this situation without the aid of the government. I did not understand from Dr. Stucky's paper that the state of Kentucky was doing its share in this work.

I believe from a somewhat full experience in a district populated by foreigners that the inspection at the Port of New York and at the other ports is not as effective in keeping out trachoma as one might think. We have in the city of Milwaukee a very large immigration at the present time from southern Europe. We have not a very great proportion of cases of trachoma, but the cases we do see are among that class of people, and generally among people who have recently come from Europe. I have myself observed the inspection, not in recent years, but formerly, at the port of New York and at other ports, and I believe not sufficient time is given to the attempt to make a diagnosis. It is not an easy matter to make a diagnosis in the early stages of trachoma, and I believe that many of the cases get through at the port of New York and at the other ports that might be diagnosed and properly handled and treated if more time were given to this particular matter, and probably more expert observation in some instances.

But what I particularly wish to emphasize is that without the help of the government, and when I say the help of the government I mean financial aid and the organization that comes from financial aid, such a situation as that in the mountains of Kentucky cannot be adequately handled. The highest function of government, I believe, is the preservation of the lives and health of its people, and I wouldn't hesitate if I were Dr. Stucky and so situated to ask the state of Ken-

tucky to provide all the money necessary and insist on it. I believe the lecture of Dr. Stucky, delivered here today, delivered to the people of Kentucky and to the legislature in session, followed by a request for funds, would bring forth the funds. It is an easy matter to get a legislature to appropriate a hundred thousand dollars for a monument or something of that sort, but a very difficult matter to get sufficient financial aid for proper health work.

Dr. William Zentmayer, Philadelphia: I wish to bear testimony as to the effectiveness of the examinations at the port of Philadelphia. Some five years ago my assistant at the Wills hospital took occasion to go over the records for the previous twenty years during which there were ten to eighteen thousand new eye cases. He found that twenty years ago 9 per cent of the cases were trachoma, while twenty years later the percentage had fallen to .9 of one per cent, and that was five years ago. Dr. Risley and the other gentlemen on the committee to make report from Wills hospital were this year struck by the infinitesimal number of plastic operations called for by trachoma. It was almost negligible. Then I was very glad to hear Dr. Fox speak of the cure of trachoma. I was taken to task by one of the army surgeons on account of an article in the Ophthalmic Record for my optimistic views on trachoma. I expressed the opinion that the damage to the eyes from trachoma had not been so serious as to incapacitate the patients from work. It may be because of this examination at our ports that we have been rather fortunate in seeing very mild cases in Philadelphia.

Dr. Lucien Howe, Buffalo: I do not think the statement made by Dr. Fox should be allowed to pass unchallenged if this discussion is to be quoted at all. We have all practiced grattage; we have all curetted, but for one I can say that in some cases I find it practically impossible to obtain a cure, at least within a few years. My second point is in regard to the effect of the number of cases in our midst which are examined at Ellis Island. It behooves every one of us to support as best we can the dillingham bill recently reintroduced in Congress, the former bill having been vetoed by the president. This bill provides practically for the illiteracy test and requires that the immigrant shall be able to read a certain number of sentences in his own language. I think

all of us who have a large foreign population to deal with, appreciate the necessity for it. If you doubt what has been said in regard to the superficial character of the examination at Ellis Island, I assure you you can be very much enlightened by spending a day there. You will find it practically impossible to diagnose these cases among the immigrants who come in by thousands as they pass in the line. No man, no matter how great his experience, can do it, and, though these men exercise the greatest care, a great many will necessarily slip through. But if you and I and others can interest Congress in the Dillingham bill we can then shut down largely on the number of those who apply. I commend this bill to your careful study, which strikes at the root of this trouble. We see the effects of this disease and we appreciate them. The majority of people do not. Your Congressman does not, but if you will appeal to your Congressmen and show them the effects of this disease, then our discussion will have some point and some results.

Dr. M. Wicher, St. Louis. I was at the Oklahoma state meeting a few weeks ago and heard a good deal of discussion there among the ophthalmologists as to the method by which this examination for trachoma was conducted. I am not speaking from any experience and I haven't any axe to grind, but I should like to ask Dr. Kerr and Dr. McMullen what the preparation and the qualifications are of the examiners who reported on these cases of trachoma. The ophthalmologists in Oklahoma held that there were a great many cases called trachoma which were not trachoma.

Dr. Lewis suggested that the health authorities require that trachoma cases be reported as other contagious cases are. I want to say that the health authorities of St. Louis have requested the ophthalmologists to report trachoma and ophthalmia neonatorum.

Dr. Edward Jackson, Denver: Bearing on Dr. Wiener's point. At the State Home for Dependent Children in Denver with 225 inmates there was a trachoma investigation. A member of the county society who has done a large amount of work examining school children was sent out to examine them and he reported that somewhat over a hundred had trachoma. Those that were supposed to have trachoma were sent down to the clinic and examined by Dr. Hoover. We

found thirty. Any single examination for trachoma made at one time can only pick out the acute and severe cases. I fancy that those in charge of the inspection at Ellis Island and elsewhere only feel justified in excluding cases that are more or less pronounced; that there are constantly coming in cases that can hardly with justice be excluded, and yet which may develop acute exacerbations and become centers of infection. I agree with Dr. Zentmayer that the work at the immigrant stations is being done extremely well and has accomplished a great deal. When I was serving at Wills hospital I think all our cases of acute trachoma were in immigrants of two or three months' standing. That was twenty years ago. Apparently they had been infected during the passage, and certainly the change from that is enormous; but it only furnishes a starting point for a campaign against trachoma. A year ago I talked with the chief health officer of Porto Rico. Trachoma was one of his most serious problems. It wasn't serious because there was much trachoma in Porto Rico; there was very little. It wasn't serious because immigrants from other countries brought it in, because he could easily manage them, as they are managed at the immigrant stations in the United States; but it was serious because citizens of the United States were continually coming from the United States and bringing it with them.

There has been considerable agitation in southern Austro-Hungary against the return of those who have been in America for several years and have become infected with trachoma and are bringing it back into that region and increasing the amount of trachoma, so the ophthalmologists say. The same agitation has been started in certain parts of Italy on the same account, and it is proposed to impose restrictions on such return. Now the question has certainly reached the stage in this country where the suggestions touched on by Dr. Parker Lewis are proper—to recognize every case of actual trachoma in the community and treat it as a contagious disease and adopt such measures as will relieve us from such centers as those on the Indian reservations and in the mountains of Kentucky, Missouri, Arkansas and Oklahoma among the white population. That means a campaign for legislation in several states for placing trachoma among the recognized contagious diseases that are a serious menace to the public health.

Dr. Frank Allport, Chicago: It has been said that a fund should be set aside by the legislatures for the relief of trachoma, for instance, in Kentucky. Now we have some wealthy states in this country where money can be set aside—New York, Illinois, Pennsylvania and various other states—but, without any disrespect to Dr. Stucky, I may say, and I think he will endorse the statement, that Kentucky is a poor state, and even this pathetic and heart-rending lecture might be delivered to the legislature of Kentucky without any financial results whatever; not that they would not be willing, but they haven't the means, and there are many states in the south and southwest where an appeal for funds would be useless for the same reason. We have got to find money in other ways, either by national legislation or by charitable contribution, or by funds furnished by some such organization as the Russell Sage Foundation.

Another gentleman spoke with reference to the incurability of trachoma. Dr. Fox's statement with regard to its curability I do not believe has been made without due deliberation and experience. I have seen dozens of cases at the Medico-Chi. under Dr. Fox's care that have been cured. I do not believe Dr. Fox would say that all cases can be cured, but most of them, either with thorough grattage, such as we all perform, and which Dr. Fox performs with unusual care and thoroughness, or with removal of the cartilage. Of course the effects are not going to be cured, such as rupture, staphyloma, etc.; but I feel that the vast majority of these cases can be cured so that they are placed on the non-contagious side. I say that, not only from observation in the clinics, but from my own observation and experience, which of course is very limited, because we do not get a great number of such cases in Chicago.

Dr. J. S. Liechtenberg, Kansas City, Mo.: In explanation of the fact that some of these immigrants get by the inspectors at the ports of entry, all of us who have been abroad have seen numbers of these patients in the various clinics treating for trachoma with the intention of coming into the United States. Take Moorfields. There is a special room for trachoma and most of them, I was told when there, expected to become immigrants. They are apparently cured. The evidence of the disease is so slight that it cannot be detected and they

come into this country and have recurrences and become foci of infection.

Mr. Henry Copley Greene, Boston: In our experience in Massachusetts we do not find a great deal of blindness due to trachoma. At the same time a certain number of cases of trachoma undoubtedly do slip through in spite of careful inspection at the ports. If an immigrant at the time of landing has been liable to become a public charge within, I think, two years, he may be deported, and for the preservation of our own citizens it seems to me very important that that law should be better enforced. There was during the last administration a certain amount of what I should call sheer sentimentalism about the deporting of immigrants. Now these cases with low vision the people demand to go to Dr. Fox or some equally eminent practitioner and they slip in and their eyes are neglected for considerable periods, and they become, not totally blind, but lose so much sight that they cannot earn a living. I think oculists can help the emigration authorities and help in the protection of the community by seeing to it that these patients who at the time of landing are liable to become public charges are deported.

Dr. John McMullen, Washington, D. C.: It is unfortunate that we have to rely absolutely on the clinical aspects for the diagnosis of trachoma. It is to be hoped that soon we shall have information on which to base a microscopical diagnosis. We are in position to see quite a number of cases of trachoma among immigrants, and we see it in all stages and in all sorts and kinds. It is three years instead of two in which the immigrant may be deported if he is reported as having the disease.

I have had the pleasure of seeing Dr. Fox operate on one case. Unfortunately, the day I was in Philadelphia the cases Dr. Fox expected to show did not come, with the exception of one. I had not seen the case before. Dr. Fox did his grattage operation. Of course in so short an observation I do not know anything about the result except what Dr. Fox tells me. I have seen the grattage operation in a number of instances, but I have never seen it carried to the extent that Dr. Fox carries it. I would have been afraid, and the other doctors thought it was the limit as to how far we could go in an operation of that kind. If the immigrants that have trachoma

in Europe would come over and see that treatment I don't believe we could get enough clinics in the next few years to satisfy them all. There must be thousands and thousands of them, and Dr. Fox would not get any rest at all. I don't want to convey the idea that trachoma is incurable, but I have never seen an operation by which it can be cured very quickly. I agree with Dr. Lewis that trachoma is a dangerous contagious disease and should be reportable. The number of people that come to Ellis Island is as many as three thousand a day. What the doctor on the line intends to do is to pass normal eyes. If he finds nothing but a conjunctivitis he puts the immigrant aside and the case is again examined in an inside room, and then, unless plainly and clearly not suspicious of trachoma, it is sent to the hospital and cared for for days and perhaps for weeks until there is no question about the diagnosis. We wouldn't certify as trachoma a case that could be treated and cured in a few weeks.

Dr. J. W. Kerr, Washington, D. C.: At the last meeting of the American Medical Association a resolution was passed calling on the service for an investigation of trachoma throughout the United States. Manifestly, that means a census of the disease among ninety millions of people. It cannot be done. It can only be done here and there. The passing of such a resolution by the American Medical Association is an evidence of the shortcoming of our system of morbidity statistics, and that is one of the first steps we have got to take in meeting the problem of trachoma in the United States. We have got to have state laws, because the government cannot force the states to report diseases. Nevertheless, we have undertaken the responsibility of the resolution of the association and instructions from Congress to make some study of the prevalence of trachoma. The Indian investigations you are already familiar with. In addition we have examined several thousand school children in California, and over 52,000 people within this state (Minnesota) within the year. In the neighborhood of 48,000 of that number were of all other populations than Indians, and we found only 77 cases of trachoma in that number. This total number included 1,300 miners in St. Louis and Itasca counties. That number brought up the general percentage of the state. I bring this out especially to emphasize the fact that we are probably not facing an

epidemic; that we have got just about what we have had for a score of years, and just what we ought to have known a score of years ago.

The responsibility regarding trachoma financially rests with the states, with the aid of the federal government. The responsibility for the care of trachoma likewise rests with the states, with the assistance of the government; and not only official agencies must be called in, but private agencies and the great body of the American Medical Association. We have found difficulty in making the inspections. In two large cities in this country we were refused the opportunity to examine the school children in one, and in the other the request for examinations was ignored. Now if we are to ascertain conditions we must have the aid of the state and local officials, which we have, and we must have the aid of the medical profession and the aid of the boards of education.

Dr. Lewis spoke of 2 per cent of trachoma among the Indians of New York. I wish to correct that; it was .2 of 1 per cent. among 993 Indians found.

I want to answer Dr. Wiener's request for information as to the experience of our officers. I rather think the discussion Dr. Wiener mentions in Oklahoma perhaps refers to the Indian Service. We heard the same criticism of the officers in the Indian Service and they were so stringent that we were quite prepared to be from Missouri and want to know why. We sent one of our most experienced officers, in the service for a number of years, who had been at Ellis Island for six years and who has seen much trachoma. We have not sent a man of the fourteen in the field who had not had years of experience in trachoma, with the possible exception of one, who had had experience but had been out of the work for a while. He was sent to a state where there were practically no Indians present. The man who reported on this work in Minnesota has been engaged in the work nine or ten years. North Dakota, similarly. Those sent to Washington, California and other states have been in this work, and although I made no personal investigations myself in the field, I have had opportunity of seeing trachoma cases in a considerable period of service at Ellis Island, Norfolk, Philadelphia, St. John, Hawaii; and so we feel that although we pay attention to other diseases to which you devote your lives, we are able to recog-

nize trachoma, and when one of us is in doubt we never certify a case without the certificate of another officer.

A word about the program: We have recognized in a general way that trachoma was present in the mountains of Kentucky, in a certain area in southern Illinois and to a very indefinite extent in the western states. We must go forward and find out what other states possess trachoma in the Appalachian chain. We propose, therefore, to continue this investigation into the prevalence of the disease. We cannot stop to study cases for days, but when we find a case with thickened eyelids and scar tissue and with pus pannus, we can say this is trachoma and represents a focus of the disease. All we can find out now is in a general way these foci. We have asked and have been granted an appropriation of \$25,000 to demonstrate the feasibility of the conduct of anti-trachoma work in two mountain counties of Kentucky. We expect to receive the assistance of the local boards of health and the local society which has done so much. Now \$25,000 won't touch the problem; a year won't touch it. It is one of the most difficult problems of preventive medicine. Ophthalmia neonatorum is simple compared with it. We have \$25,000 for this. Ten thousand of that continues the inquiry, but we are sure to need more. The only object is to determine how much more we will need and how much the states will have to give. Primarily, the duty is one for the state, and the state of Kentucky must appropriate money, and the other states must appropriate money, and, taken altogether, we shall be able to devise and carry out a very effective campaign against this disease.

Dr. J. W. Stucky, Lexington, Ky: I want to assure Dr. Fox that I do believe that trachoma is curable. I am sure of it. I wish very much that when we establish a clinic down there Dr. Fox will come down and stay a week and show us the grattage procedure and then tell us what to do with the sequences of the disease.

I reported conditions to the State Board of Health two years ago, but what is the use? The State Board of Health has a mere pittance of money. The state of Kentucky is wealthy in everything but money. We are over two and a half million dollars in debt. The state board two years ago appropriated \$100 for this work, which would nearly pay for one of my trips. I credited them with it, but it has not been

paid yet. Some one said, "Why don't you go to the legislature?" I asked for that privilege. I went to Frankfort for that purpose and I was told by the powers that be, "What is the use?" We will defeat every opportunity that we have in view now of getting the board started—of getting a little help.

Now shall we appeal to the government? We did and the government answered promptly. Shall we appeal to the masses? That is the question. It is not an easy question. My own state pride rebels at the idea of asking any state to help us; but if we can't we can't, and that is all there is to it. It is up to the medical profession to assist in educating the people who are blessed with more than their share of this world's goods to help to save the last remnant of the real American, the people who came with Daniel Boone long time ago.

WEDNESDAY, JUNE 18—2 P. M.

Metastatic Ophthalmia. Report of Three Cases, One of Which Resulted in Recovery of Vision.

BY WILLIAM H. WILDER, CHICAGO.

Abst.—In Case 1, a woman aged 64; general sepsis of a cryptogenetic character; thrombosis of one leg, parotitis and cystitis. Metastatic ophthalmia in left eye, followed by similar inflammation in right. *Bacillus coli communis* in urine, *Staphylococcus aureus* in blood. Death from terminal pneumonia. Patient 2, a young woman aged 25; tonsillitis, otitis media, pneumonia, synovitis of wrist and knee and finally metastatic ophthalmia of left eye. Inflammation severe, but eye did not suppurate. Virulent streptococcus in tonsil, ear and eye. General recovery with phthisis bulbi. Patient 3, girl of 18; diphtheria followed by streptococcus infection of the tonsils. Sudden loss of vision of both eyes with violent uveitis, severe pain and chemosis. Ultimate subsidence of inflammation and recovery of normal vision in both eyes. General consideration of the disease, symptoms, etiology and prognosis. Grave prognostic significance of this affection in general septic conditions.

DISCUSSION TO BE OPENED BY OSCAR WILKINSON,
WASHINGTON, D. C.

DISCUSSION. Dr. Oscar Wilkinson, Washington, D. C.:

In regard to the doctor's third case: while there is little doubt that it was a case of metastatic ophthalmia there is grave doubt that it was due to streptococcus, for a well developed streptococcus infection in the vitreous would undoubtedly lead to blindness. The inflammation in the vitreous was possibly due to the toxin from the diphtheria. Pus-forming germs would not be apt to leave an eye in a healthy condition when they had been sufficiently numerous and sufficiently well organized to obscure vision. I doubt very seriously that any pyogenic metastatic eye ever recovers after vision has been reduced to light perception. The inflammation from the meningococcus and several other of the milder and less active bacteria would not be likely to cause so much damage to an eye. It is a well known fact that metastatic ophthalmia is a grave symptom usually found in cases of general pyemia, and as pointed out by the author, when both eyes are affected, the prognosis is ominous.

I think it is quite probable we sometimes have slight inflammations of the choroid which are not sufficiently developed to attract our attention, owing to the serious ill news of the case at the time, and it is possible that even pyogenic organisms might be thrown into a vessel of the choroid without developing into an abscess of serious moment. When this class of bacteria develop sufficiently to cause blindness, as said before, we would have grave doubts of the recovery of vision.

We are indebted to aseptic surgery and to aseptic accouchment for the decline in the number of these cases. By properly attacking the foci of infection and eradicating this we are enabled to prevent a large majority of these cases, and also to prevent a fatal termination which was formerly so frequently associated with puerperal conditions, and particularly those cases in which metastatic ophthalmia was present.

The fact that metastatic ophthalmia is associated with some general infection shows that our first duty is to find the cause of the infection and relieve that as soon as possible either by surgery or serum, or by both.

SERUM AND VACCINE: Serum and vaccine really offer us the only hope in the way of treatment outside of combating the general conditions with tonics, and attacking the food of infection with the knife and antiseptics. I was particular-

ly glad to note that the author had mentioned this form of treatment but regret he did not go more into detail regarding its application and usefulness. The use of the proper serum is indicated in all cases of metastatic ophthalmia where bacteria are found in the blood, or even in cases in which there are no bacteria found in the blood where there is a focus of infection as in the doctor's second case. Sufficiently large doses given intravenously as the improvement or condition of the patient might indicate would, no doubt, prevent the fatal termination in some of these cases even though the eyes might be lost. In cases which are sufficiently chronic I would advise the use of both serum and vaccines. Vaccine is effective as a preventative when an early diagnosis of the general infection which caused the metastatic ophthalmia has been made, and by its use it is possible to prevent many of these cases. While it may not be always necessary to use autogenous vaccine which is usually the most effective, *it is* always necessary to discover the bacteria at fault and to give a vaccine accordingly. If seen early enough, in mild cases, it is possible to prevent the disease, particularly so if the doses are large enough. The weakest point in the vaccine and serum therapy is the timidity with which it is given.

Dr. Allen Greenwood, Boston: Some five years ago there occurred in Boston an extremely severe epidemic of cerebro-spinal meningitis, an epidemic that increased in severity as the cases became more frequent, and then subsided, so that during the whole year we had a great many cases at the Boston City Hospital. The essayist speaks of meningitis causing metastatic ophthalmia of mild character. That may be true, perhaps, of some forms of meningitis in children. In this epidemic in Boston it wasn't true. The cases of metastatic ophthalmia were extremely severe. It is true that most of the patients with metastatic ophthalmia died, but the severity was very marked. One man recovered, with a complete paresis bulbi in the eye involved. At that time Dr. Councilman in Boston called attention to the great prevalence of optic neuritis and chorioidal trouble in meningitis, and practically every patient who entered the hospital with meningitis showed disturbance of the optic nerve. Now there is a little question, perhaps, whether these cases should be called metastatic ophthalmia, or whether it was a direct extension of the infec-

tion and the fluid of the sheath directly into the eye itself. In the cases I saw the eyes were lost quickly, and the patients, with one exception, who showed ophthalmia died from cerebrospinal meningitis.

Dr. Casey Wood, Chicago: I was very much interested for a number of years in metastatic ophthalmia and had the usual run of cases, which are not common, and I thought you might be interested in a case which illustrates not only the preantiseptic era in obstetrics, but illustrates the extreme rarity of recovery from bilateral infections from metastases.

DISCUSSION. Dr. Casey Wood, Chicago: In January, 1894, I was consulted by a woman who exhibited one of the rare cases of metastatic ophthalmia just referred to by Dr. Wilder, in which, although there was a bilateral, septic panophthalmitis and vision was completely lost in both eyes, yet the patient survived.

The history showed that she was 34 years of age and was apparently free of organic disease. Of her four pregnancies only one had a living issue, a child in poor health. Of three other conceptions one ended in a miscarriage and two others in still-born children, each at about the seventh month. The first of these premature labors was accompanied by an albuminuria and followed by a mild attack of puerperal fever.

Three days before the termination (at seven months) of her last pregnancy she was seized, on retiring, by a violent headache which continued during the night and was accompanied by "cracking" noises on the left side of the head and face. When morning came, the patient could not see out of the left eye, and the lids were much swollen. During the day the eyelids on the right side began to swell, and later on, the vision was also extinguished in the right eye.

The edema of the parts increased until the eyeballs protruded between the enormously swollen lids. When I saw her six weeks after the trouble set in, the patient was still weak and had a rapid pulse, although her temperature was normal and she had no albuminuria. There were no lesions of the heart, lungs or reproductive apparatus discoverable on an examination by a competent surgeon.

The patient presented an ocular picture that I have not since forgotten. The skin about the whole orbital region on

both sides was enormously swollen and thickened; the lower lids were everted and could with difficulty be replaced, while the conjunctiva, both ocular and palpebral, oedematous and covered with pus, hung in folds over the margins of the lids.

The cornea had almost entirely sloughed off, and from the gaping openings in them, the pus was still oozing. Some attempt at repair had been made on the right side, where to some partially organized scar tissue lens matter was still adherent.

A careful examination of the case disclosed no septic foci except those established by the puerperal state in a probably luetic subject; hence, I think, we were justified in regarding the process as a bilateral panophthalmitis due to a septic embolism of uterine origin.

A year after the accident the patient was still living; in fair health, but with much shrunken eyeballs.

This case was reported, both in the *American Journal of Obstetrics* for 1894 and in the *Philadelphia Medical News*, April 27, 1895.

Dr. Edward Jackson, Denver: I recall two cases of women suffering from panophthalmitis in one eye from pneumonia. In one of them the eye recovered blind but not much shrunken. There was no bacteriologic evidence. The other patient came into the county hospital for a comparatively light pneumonia, with not very much pleurisy, and that ran its course very well. About the third day the eye became severely inflamed and burst, I think, on the third day of the ocular inflammation. The pus from the interior of the eye was loaded with influenza bacilli. The patient did well in a general way for ten days, at the end of which time she developed an acute endocarditis and died when she had been in the hospital about three weeks.

Dr. Adolph Alt, St. Louis: I agree that in meningitis the infectious process simply creeps down into the eye through the vaginal process. I have had a few cases in which I found this to be the case. We have no metastasis, but an extension from the meningeal process through the vaginal process down into the eye.

Dr. W. H. Wilder, Chicago: I do not wish to give the impression that because the streptococcus was found in the

tonsil in this patient that recovered that therefore the streptococcus was responsible for the inflammation in that eye. We find the streptococcus associated with diphtheria, probably, and it is found, as it is believed, with scarlet fever, and it may be that it plays the same role in the condition there. But the streptococcus also varies very much in virulence as has been determined by those working with it. For example, Rosenow has found the streptococcus viridans to be a peculiarly virulent organism, and other strains will not show nearly the same degree of virulence, so that I do not think it is beyond reason that the eye might not recover even were it affected with the same strain of streptococcus; but the presumption is that in this last case the infective agent was really the diphtheria bacillus, and that probably the prompt administration of antitoxin had something to do with checking that process. If that is true, if it were really a case of metastatic ophthalmia, which was affected by the prompt administration of antitoxin, it holds out the hope that if we can find the organism causing the trouble and administer the serum or vaccine we may hope to avert some of these disastrous cases and conserve a degree of sight. That this third case may have been due to infection with the diphtheria bacillus is not unreasonable. It has happened before. We can do nothing but presume in this case, because we cannot examine the media of the interior of the eye for the organism, but it followed all the clinical features of metastatic ophthalmia. If that is true that the antitoxin did result in this way, it lends the hope that we may either by an autogenous vaccine, or possibly by mixed vaccines, accomplish something, although I think the trend of opinion is more or less against that treatment.

(TO BE CONTINUED.)

EDITORIALS.

PREPARATION FOR OPHTHALMIC PRACTICE.

The interest which this subject has awakened among ophthalmologists indicates that they are becoming aware of the need there is for improved methods of training those, whose special field of work is to be, the correction of the defects, and the treatment of the diseases of the eye. This interest is the best possible guarantee that improved methods will be worked out and adopted.

It was through Mr. Doyne, Reader of Ophthalmology at the University of Oxford, supported by the Regius Professor of Medicine, Sir William Osler, that the first concrete movement to improve the training of Ophthalmologists took shape in the establishment of a course, leading to the degree Doctor of Ophthalmology, from the old and universally respected institution of learning. Within two years the active and progressive University of Liverpool established a similar course; and a year later the University of Colorado undertook the same line of work. By the latter institution the degree in question was first conferred in this country at its recent commencement upon three Ophthalmologists, who had met its requirements as to preliminary medical and ophthalmic training.

But the most hopeful sign of improvement in our standards as to what shall be required before a doctor shall be recognized as prepared for ophthalmic practice, is the interest the subject has awakened among those who are now engaged in such practice. At the last three meetings of the Section on Ophthalmology of the American Medical Association, this has been a topic of live interest, giving rise to animated and generally harmonious discussions. At the meeting of the American Academy of Ophthalmology and Oto-laryngology last year, this subject claimed the attention of the fellows; many taking part in the discussion thereon, which was one of the most spirited and general of the meeting. In May of this year, at the American Ophthalmological Society, the president in his opening remarks referred especially to the matter; and later in the meeting a committee, consisting of Drs. C. E. de-Schweinitz, chairman; Myles Standish, John E. Weeks, S. D. Risley, and Edward Jackson, was appointed to consider and report on it.

At the recent meeting of the American Medical Association at Minneapolis, a committee was appointed by the section on ophthalmology, in accordance with the recommendation of its chairman, to report next year on the teaching of ophthalmology. This committee was constituted with Drs. Jackson, chairman, Hiram Woods, William Zentmayer, Alexander Duane and Walter R. Parker.

Just prior to the meeting of the A. M. A., there was also held at Minneapolis a conference on "Preparation for Ophthalmic Practice," at which were read five papers published in this

issue. These were followed by the discussion of which we also give a stenographic report. This conference was attended by representatives of more than twenty-schools and hospitals which are giving post-graduate instruction in ophthalmology.

It is clear that members of the medical profession, engaged in ophthalmic practice, and to some extent other interested in medical teaching, have awakened to the importance of providing instruction in a branch of medicine, which the honest physician in general practice frankly tells his patients he is not prepared to undertake.

The teaching of ophthalmology properly falls into two divisions: under-graduate, which every Doctor of Medicine should have; and that which must be added to the former after graduation, to give a proper preparation for ophthalmic practice. The former has been given with more or less thoroughness in all our medical schools. The latter has been almost completely neglected by our better organized institutions of learning.

The need for this special training for ophthalmic practice has come to be widely recognized. The committees now appointed will do something toward defining what the training ought to be. A standard will be worked out and accepted that will help to remove the conditions under which any one, with a most meager pretense at study and training for it, announces himself as prepared for ophthalmic practice, whenever he thinks the announcement will increase his income.

THE CONSERVATION OF VISION AT THE TWELFTH INTERNATIONAL CON- GRESS OF OPHTHALMOLOGY.

Preventive medicine has become with the ophthalmologist as important a feature of his work as it has in every other department of medicine. It is rapidly being recognized everywhere that to save eyes from accident and disease and to prevent their unnecessary destruction is as much the work of the ophthalmologist, is as important, as dignified and as scientific as it is to cure the disease already established, and as in the latter case even under most favorable circumstances there is always apt to be some lowering of visual acuity it is evident that from an economic and humane standpoint infinitely more can be accomplished by prevention than is possible within the narrow lines of merely curative medicine.

The growing development of this phase of the move-

ment has been shown in the rapidity with which organized work for the prevention of blindness and the conservation of vision is being carried on throughout the world. In the United States progress has been particularly notable. Commissions for the blind, one of whose chief reasons for being is the prevention of blindness, now exist in Massachusetts, Ohio and in New York, while an effective work is also carried on in the state of New York by the Russell Sage Foundation at an expense of \$5,000 a year which is devoted wholly to the prevention of blindness.

At the last meeting of the American Medical Association on the recommendation of the section on ophthalmology the work of the Committee on the Prevention of Blindness was taken over by the section and through a committee recommended by the section made a part of the general public health movement which the association is now carrying on.

In other parts of the world the work is being equally recognized. An important national association exists in France which receives the support of the government and which at its inaugural meeting was addressed by its honorary president, Dr. Valude, senior editor of the "Encyclopedia d'Ophthalmologie," its secretary being the well known Professor of Ophthalmology, Dr. Truc of Montpellier.

At the May meeting of the Heidelberger Ophthalmologische Gesellschaft a communication was presented through one of the corresponding members of the Twelfth International Ophthalmological Congress to be held in St. Petersburg in August, 1914, urging that a request be made that a part of the session of the congress be devoted to the consideration of the "Conservation of Vision and the Prevention of Blindness." This met with a most hearty endorsement and Professor Dr. Wagenmann was appointed on behalf of the ophthalmologists of Germany to communicate with the general secretary of the congress to this end. It is expected that one morning will be devoted to this subject and from this may result more definitely organized efforts in preventive ophthalmology throughout the world.

F. Park Lewis.

NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Building, State and Madison Streets, Chicago, Ill.

Dr. Cornelius A. Leenheer of Chicago is in Europe.

The Convention of the Illuminating Engineering Society will be held in the Hotel Schenley, Pittsburg.

The Fourth International Congress on School Hygiene will be held in Buffalo, August 25th to 30th, 1913.

Wills Eye Hospital of Philadelphia has received a bequest of \$5,000 by the will of the late Henry B. Palethorp.

Dr. Lewellyn C. Manchester, for many years on the staff of the Pittsburgh Eye and Ear Hospital, died June 13th, aged 50.

Dr. Joseph O. Stillson has returned from a post-graduate course in Europe and has located in the Pythian Building, Indianapolis, Ind.

Dr. Walter Weidler succeeds Dr. E. A. Oatman as pathologist to the eye department of the Manhattan Eye, Ear & Throat Hospital of New York.

Compulsory notification of ophthalmia neonatorum exists in 127 districts of England and Wales. There were 2,186 cases reported during the past year.

Sir Jonathan Hutchinson, one of England's most prominent surgeons and dermatologists is dead, aged 84. Mr. Hutchinson was a past president of the Royal College of Surgeons and Hunterian lecturer of the same society. He was an authority on skin diseases and syphilis.

The headquarters of the section on surgery of the eye, ear, nose and throat of the Clinical Congress of Surgeons of North America will be at the Hotel Sherman, Chicago. The

meeting is from November 10th to 15th. Those interested in this special Section will also hold meetings on Tuesday, Thursday and Friday evenings.

A committee is being formed to arrange a memorial to the late Sir Henry Swanzy, Ex-president of the Royal College of Surgeons, Ireland, Ex-President of the Ophthalmic Society of the United Kingdom and who was to have presided over the Section of Ophthalmology of the International Medical Congress which meets in London this summer.

Dr. Howard V. Dutrow, formerly of the Medical Service of the Department of Sanitation of the Isthmian Canal Commission, as Assistant Chief, and Chief of the Eye, Ear, Nose and Throat Departments of the United States Government Hospitals at Ancon and Colon respectively, has located in Dayton, Ohio, where he will practice his specialty in partnership with Dr. H. D. Rinehart under the firm name of Rinehart and Dutrow.

One of the most interesting sessions of the Oxford Ophthalmological Congress was held July 17th in the Department of Human Anatomy. The following subjects were presented:

In the Department of Human Anatomy, by kind permission of Professor Arthur Thomson:

2. 10 a. m.—Professor Emil Von Grosz (Budapest).—The methods of Cataract Extraction practised in the Royal Hungarian University Eye Hospital, No. 1, Budapest.
3. 10:40 a. m.—DR. JOHN O. McREYNOLDS (Dallas, Texas, U. S. A.).—Observations upon the nature and treatment of Pterygium.
4. 11:30 a. m.—Dr. J. Igersheimer (Halle, Germany).—Recent investigations upon Inherited Syphilis of the Eye.
5. Noon.—Lieut. Col. R. H. ELLIOT, I. M. S. (Madras, India).—Points as to trephining in Glaucoma, acute and chronic: (a) homatropine as an adjuvant in the diagnosis of glaucoma: (b) the influence of various subconjunctival injections on the tension in glaucoma: (c) the relationship between the amount of subconjunctival tissue present and the difficulty of splitting

the cornea; (*d*) the best diameter trephine to employ; (*e*) the best shape for a sclerectomy, circular or elliptical; (*f*) so-called post-operative iritis, its nature, its significance, and its importance; (*g*) the causes of failure after trephining.

The following program on the Conservation of Vision will be presented at Buffalo, August 25 to 30, 1913, at the meeting of the Fourth International Congress of School Hygiene:

F. PARK LEWIS, M. D., Buffalo, N. Y. "Mind Making Through Sight Saving."

SAMUEL D. RISLEY, A. M., Ph. D., M. D., Emeritus Professor Diseases of the Eye, Philadelphia Polyclinic and College for Graduates in Medicine, Attending Surgeon, Wills Hospital for Diseases of the Eye, Philadelphia, Pa. "The Vision of the School Child as an Important Factor in School Progress."

WILLIAM MARTIN RICHARDS, A. B., M. D., 229 West 97th Street, New York, N. Y. "The Influences of the Treatment of the Defects of Vision Upon the Health and Progress of School Children."

LEWIS C. WESSELS, M. D., Board of Health Ophthalmologist, Philadelphia, Pa. "Defective Vision in School Children from an Economic Standpoint."

MATHILDE GSTETTNER, M. D., Assistant Oculist Vienna Polyclinic High School, Secretary Austrian School Hygiene Association, Vienna, Austria. "Influence of Blackboards' Position on Lighting of Desks."

WM. H. BURNHAM, Ph. D., Professor Pedagogy and School Hygiene, Clark University, Worcester, Mass. "Standardization of School Books in Relationship to the Hygiene of Vision."

OTTO GRENNES, M. D., Christiania, Norway. "Hygienic Progress in Norwegian School Writing." (To be read by title.)

CLARKE FULKERSON, M. D., Medical Inspector of Schools, Kalamazoo, Mich. "Importance and Methods of Detection of Ocular Diseases of School Children."

J. HOLBROOK SHAW, M. D., School Physician, Plymouth, Mass. "Some Important Ocular Conditions Found in Backward Children, With a Report of Cases."

R. KAZ, M. D., Consulting and School Oculist, St. Petersburg, Russia. "Pretended Ocular Diseases in Schools."

NOTICE.

Dr. D. W. Greene, Dayton, Ohio, desires a copy each of the August and September, 1904, and February, 1905, issue of the *OPHTHALMIC RECORD*. He will pay fifty cents for each and postage.

BOOK NOTICES.

OPHTHALMOLOGY FOR VETERINARIANS, by Walter N. Sharp, M. D., Professor of Ophthalmology in the Indiana Veterinary College; Ophthalmic Surgeon to the Indianapolis City Hospital. Illustrated. Philadelphia and London, W. B. Saunders Company, 1913.

Dr. Sharp's small volume of 210 pages will be of great use to those interested in the care of the eyes of animals. The subject is scarcely touched upon in the literature, so that Dr. Sharp's book fills a definite need.

OPHTHALMIC SEMIOLOGY AND DIAGNOSIS, by Charles H. Beard, M. D., Surgeon to the Illinois Charitable Eye and Ear Infirmary (Eye Department), Oculist to the Passavant Memorial Hospital and the North Star Dispensary (Chicago). Member and Ex-President of the Chicago Ophthalmological Society, Member of the American Ophthalmological Society, etc. Illustrated. Philadelphia, P. Blakiston's Son & Co., 1913.

It is almost "carrying coals to Newcastle" to recommend to the ophthalmologists of America a book by Dr. Charles H. Beard. We need therefore only to say, succinctly, that, in the present volume, Dr. Beard's high standard of literary and scientific merit is fully maintained. As stated in the preface of the book, "There is no other separate volume, in any language, devoted exclusively to ocular semiology." We predict for this unique and scholarly work a large sale and full appreciation.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.) G. W. Mahoney (P. G.)	*Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) G. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.) Brown Pusey, N. W. U Every day, 10-12 A.M.	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wipperrn (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wipperrn (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipperrn (E. E. N. T.)
1 P.M.	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Illa. Med.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) Wm. W. Woodruff (Inf.) N. A. Young (P. & S.) Francis Lane (Rush) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) D. A. Payne (Illa. Med.) H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) Wm. E. Gamble (Inf.) F. J. Gardner (E. E. N. T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Illa. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Illa. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Illa. Med.)	*I. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	W. Allen Barr (P.-G.)	W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School,
819 W. Harrison Street.
E. E. N. T.: Chicago Eye, Ear, Nose
and Throat Clinics, Washington
Franklin Streets. Clinics all day.

County: Cook County Hospital, W.
Harrison and Honor Streets,
Illa. Med.: Illinois Medical College,
182 Washington Blvd.
Inf.: Illinois Charitable Eye and Ear
Infirmary, Peoria and Adams Streets.

Poli.: Chicago Policlinic and Hospi-
tal, 174 E. Chicago Avenue.
P.-G.: Post-Graduate Medical School
of Chicago, 2400 Dearborn Street.
N. W. U.: Northwestern University,
2431 Dearborn Street.

Rush: Rush Medical College, W.
Harrison and Wood Streets.
St. Luke's: St. Luke's Hospital, 1416
Indiana Avenue.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXII

CHICAGO, SEPTEMBER, 1913

No. 9, New Series

ORIGINAL ARTICLES

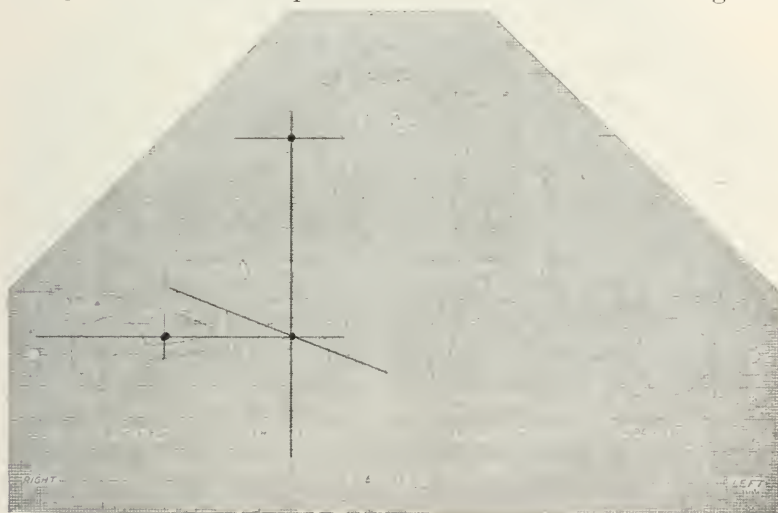
THE MANAGEMENT OF FOREIGN BODIES IN THE EYE AND ORBIT.*

EDWARD STIEREN, M. D.

PITTSBURGH, PA.

Illustrated.

The following observations are based on an experience of sixteen years with 180 cases of proven foreign bodies in the eye-ball and 26 foreign bodies in the orbit, sixteen of the latter being cases of double perforation of the tunics of the globe



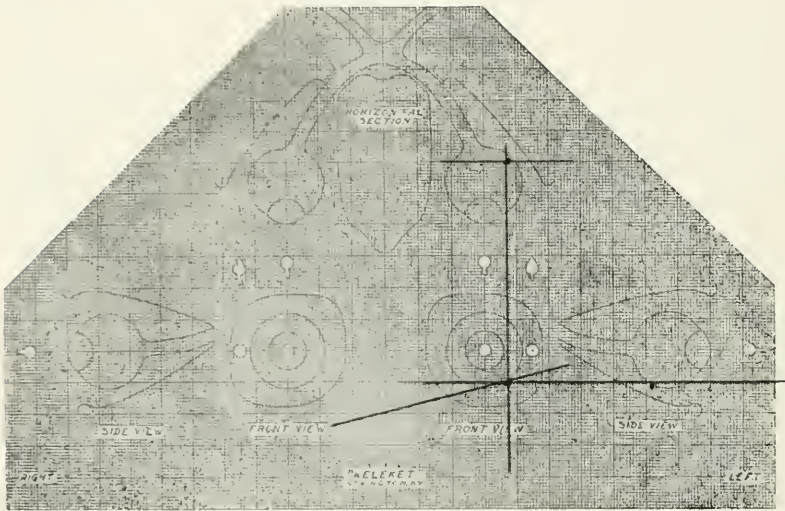
with localization or recovery of the foreign body from the orbital tissues.

My record shows that the first accurate localization of a foreign body in the eye by X-ray was made for me by Dr. G. C. Johnston in Oct. 1903. Prior to that time we did not possess this indispensable aid in Pittsburgh and depended solely upon the magnet as a sideroscope in determining the actual

*Read before the College of Physicians of Pittsburgh, January 23, 1913.

presence of a magnetic body in the deeper parts of the eye, or on those rare occasions when the foreign body could be seen with the ophthalmoscope.

Of foreign bodies in the anterior chamber or imbedded in the iris little need be said. In my hands a bold section of the cornea at the limbus with subsequent introduction into the anterior chamber of forceps, performing an iridectomy when necessary, has given better results than the use of the electric magnet in this region in attempting to remove a magnetic foreign body through the wound of entrance.



Injuries to the lens however have given me much food for thought and I have long ago given up the notion of allowing a traumatic cataract to undergo the slow process of absorption but proceed immediately to a corneal section and evacuation of the lens matter as completely as the circumstances of the injury permit.

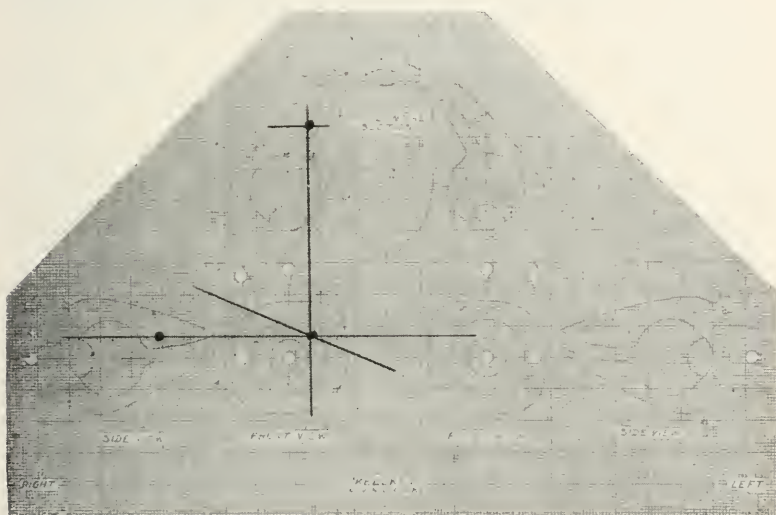
Experience has taught me that thick leathery membranes are too prone to develop where the slower and less risky method of needling or spontaneous absorption is adopted. Not only is it difficult to make a suitable opening in such a membrane but the formation of multiple posterior synechiae is almost sure to occur with smouldering iritis and cyclitis for weeks afterwards.

This dogma I would apply to all cases of traumatic cataract irrespective of the age of the patient or whether the foreign body still remained in the lens or had passed through

into the vitreous, or had been removed by the magnet or forceps.

Although foreign bodies have been removed from the crystalline lens which afterwards remained partially clear and with no subsequent inconvenience, or, as in Claiborne's case (Trans. Am. Oph. Soc. 1912) where a small spicule of glass has been borne in the crystalline lens for three years with vision 20/30, my only experience in which I entertained this hope failed, although the end result after extraction was perfect. Briefly the case is as follows:

G. N. D., age 42, painter, appeared May 24, 1909. R. V. good light perception and projection. L. V. 4/50.



History of injury to the left eye a week before while opening a can of paint with a chisel. A linear scar of the cornea about 1 m.m. long in the lower inner quadrant. About 5 m.m. above the scar is a small triangular foreign body imbedded in the lens with surrounding opacity of the lens, but no apparent swelling of the lens or increase in tension. No pain or injection. Both pupils dilate *ad maximum* under a mydriatic.

Right eye, mature cataract, 4 or 5 years old. No history of traumatism to right eye nor of syphilis. Urine free from sugar and albumin.

Simple extraction of right lens May 25 with uneventful recovery and subsequent vision of 6/6-, corrected.

The left lens (containing the foreign body) remained

practically stationary for four months and a half; Oct. 2, '09, L.V.=6/50; with + 2 D. S. V. =6/25.

The following week however, he appeared with the statement that the sight of this eye had become poorer. The lens, it could be plainly seen, had become generally cloudy and of a light brownish hue, vision having dropped below 6/80.

Three and a half weeks later he appeared with a history of a painful left eye all of the preceding night. The eye was found to be in a state of acute glaucoma, pupil dilated, cornea hazy and tension + 1. The lens was much swollen, the anterior chamber practically obliterated.

The same afternoon I performed a combined extraction recovering the foreign body which proved to be a chip from the chisel.

This eye also made an uneventful recovery with V = 6/6 corrected.

I have reached a decided state of mind in regard to foreign bodies in the vitreous and will never again attempt the removal of magnetic foreign bodies by way of the anterior chamber.

Given by X-ray the exact location of a magnetic foreign body in the vitreous, I believe we subject the eye to much less traumatism if we insert the cone-shaped tip of the magnet in a scleral wound made with a sharp cataract knife at a point as nearly opposite the foreign body as possible, than to have the foreign body force its way through lens or ligament, iris or ciliary body. Not infrequently the wound of entrance in the sclerotic can be utilized and in these cases I find it to be distinctly advantageous to insert a narrow cataract knife through the wound in the direction of the foreign body to open a path through the clot which usually seals the internal aspect of the wound and which might possibly entangle the foreign body.

I have been gratified beyond measure by the results I obtained since adopting this route exclusively and show as an example this chart (Fig. 1.) with recovery of normal vision. The foreign body, a piece of steel, had entered the eye-ball through the sclera about 5 m.m. from the limbus, between the superior and internal recti. Upon admission to the hospital, an hour after the accident, there was a large subretinal hemorrhage causing a detachment of the retina in practically the

entire nasal half and some bleeding into the vitreous. The foreign body after being localized was removed by magnet through the original wound the same day. There was no infection, the hemorrhages in the interior of the eye absorbed and vision steadily improved to normal in ten days and has remained so. The only evidence of injury at present is the scar in the sclerotic at the wound of entrance with a small area of choroidal pigmentation at the same point in the interior of the eye.

It is my custom to supplement the surgical procedure with therapeutic measures intended to promote absorption of retinal and vitreous hemorrhages and exudates, such as diaphoresis in the electric cabinet bath, salicylates and mercury, the latter given in the form of gray oil hypodermically. Dionin and hot stupes to the eye are never omitted. Recently I have been using the galvanic current in vitreous opacities and it does seem to exert a beneficial action in promoting their absorption.

Of foreign bodies in the orbit my observations have been that metals are well borne and need not be disturbed if resting in the orbital flat, with copper and brass as exceptions. The accompanying charts (Figs. 2 and 3) show respectively a piece of steel which has remained in the orbit for more than two years and a bullet for one year, without causing the slightest reaction. Glass and wood however I have found will not remain quiet, wood having a tendency to create fistulous tracts and glass to wander.

Searching for a foreign body in the tissues of the orbit, even though it has been accurately localized, is a more or less difficult procedure. When absolutely necessary it is best accomplished through a free incision through the palpebral skin since the incision in the conjunctival fornix gives but a limited field in which to work as well as the trouble which the upper lid gives.

However, when one considers the damage that can be done by surgical interference to muscles, nerves and blood-vessels in the deeper parts of the orbit, a conservative course is the better one, the foreign body being allowed to remain unless there is urgent demand for its removal.

HOLE AT THE MACULA.

A. A. BRADBURN, F. R. C. S. (ED.), MANCHESTER, ENGLAND.

ILLUSTRATED.

In the February issue of the *OPHTHALMIC RECORD* Dr. Clapp of Baltimore records a case of this condition, and gives a resumé of previously recorded cases. I here add another case, which came under my notice in March, 1913. The patient was a little girl, aged 10 years. Her parents had noticed that for years past she had a tendency to outward squint in the right eye. Examination revealed 3 degrees of divergent



strabismus in the right eye, and a slow horizontal nystagmus in the left eye, periodic and jerky in character. There was no history of injury, or disease or family defect to account for the condition.

Refraction tests revealed some hypermetropic astigmatism. Vision uncorrected, in R. E.=5/24 (n. i. gl.) and in L. E.=5/18; with glasses 5/12. In the L. E. the disc was pale and the retina thin in the neighborhood of the macula. There

was nothing else to account for the nystagmus. In the R. E. lying between the disc and the macula was a triangular white area with its base towards the disc and its apex at the macula. No sign of the macula itself could be made out. The edges of the "hole" were unpigmented, round, and tinged with the thinned out chorioidal coat. In one or two parts, very fine vessels could be traced passing onto the area but not crossing it. The condition was evidently a congenital absence of retina and choroid, in the fellow eye, with a tendency to a similar condition.

REPORT OF CASE OF SPONTANEOUS DISLOCATION OF BOTH LENSES INTO THE VITREOUS.

BY J. C. MC ALLISTER, M. D., RIDGWAY, PA.

Mrs. T. N. P., aged 60, came to my office April 4th, complaining that she had a few days previously gone nearly blind in her remaining good eye, and that this happened instantaneously while walking across the dining room floor. The other eye had become blind in a similar manner some twenty years previously. She also stated that everything looked blue to her and that on lying on her back and looking upwards that there were flashes of light. The daughter who accompanied her to my office stated that her "sight trembled."

Inspection showed that both anterior chambers were deep, both irides tremulous and that the pupils were about two m.m. in diameter. Tension of eyeballs apparently normal (finger palpation). There were no indications of any irritation in either eye.

Wishing to make a good examination of the fundi and to locate if possible the dislocated lenses, I used homatropine and cocaine for mydriatic purposes but the pupils responded but feebly to the action of the drugs and owing to limited time of patient's visit, the details of neither fundus was made out clearly, the fundi being slightly hazy and neither lens located.

Refraction gave the right eye plus 11. D. Sph., vis. of 6/22 and left eye plus 12. D. Sph., cyl. slight, vis. of 6/13 and with a reading correction of plus 14. and plus 15. D. Sphs., she is able to read Jaeger 0.75. With correcting glasses, she is not conscious of any chromatopsia.

Looking over my general index to THE OPHTHALMIC RECORD, I find that the late Dr. Hubbel reported two cases, in

sisters, of spontaneous dislocation of both lenses. See Vol. XV, page 477.

COMPLETE BILATERAL ANIRIDIA: ECTOPIA LENTIS: PATHOLOGICAL CUPPING OF THE DISCS.

BY T. B. HOLLOWAY, M. D., PHILADELPHIA, PA.

Recently there was admitted to the Pennsylvania Institution for the Instruction of the Blind, at Overbrook, a boy, age 10 years, whose history is recorded below. From the student's application blank the following history was obtained:

Impaired vision was first noted at the age of three years. Of the diseases of childhood he had whooping cough, but he never had convulsions or any other serious illness, neither has he any other deformity than that presently to be described. His parents are living and in good health. The patient is the oldest of three brothers. One of these died in infancy as the result of pneumonia. The parents and brother are said to be free from any blindness, deafness, insanity, or other infirmities of the body or mind. The same can be said of his paternal grandparents, both of whom are living, and likewise of his maternal grandmother, but his maternal grandfather died at the age of 48 years. There is no history of consanguinity. The patient himself states that his mother's eyes are not very good. The patient was first seen January 23, 1913, at which time the following conditions were noted:

There was a horizontal nystagmus with a tendency for both eyes to deviate to the left. The cornea measured 11 m.m. in diameter, and were free from any pathologic lesions. By oblique illumination there was noted in each eye a complete absence of the iris, and in the upper portion a grayish reflex due to a dislocation of the lens directly upwards, the lower margin of each lens corresponding to about the horizontal mid-line of the cornea. With the ophthalmoscope, the dislocated lens showed the characteristic dark lower margins and a few very delicate opacities could be seen in each lens. The lower margins of each lens seemed to be less convex than normal, this being most apparent at the lateral borders where there was a slight break in the regular curvature at these points. By careful examination the radiating fibers of the suspensory ligament could be noted at the lateral angles, but there was a wide central deficiency of these fibres. A fundus examination either

through the aphakic or phakic portion, revealed marked pallor of the discs with practically complete deep cups and characteristic bendings of the vessels at the cup margins. When first seen there was a questionable increase in the tension of the left eye, although when seen a week later, the tension of each eye was normal. Owing to the nystagmus present in this case, it was impossible to use a tonometer. The teeth did not show any distinct enamel disturbance, nor were they even suggestive of the Hutchinson type.

The multiple ocular defects in the patient above referred to were not associated with congenital defects elsewhere in the body, but as illustrating how this does at times occur, the patient whose history has been cited by Hirschberg, may be mentioned. In this case bilateral microphthalmos, irideremia, cataract, hare-lip, cleft palate, polydactylism and defective skull formation were present. For the various theories bearing on irideremia and ectopia lentis, as well as for the pathological studies, the reader is referred to Parsons, who has analyzed the literature and discussed these subjects in detail. Attention, however, may be called to several points that seem to be of interest. The change in the curvature of the lower portion of the lens in this case is doubtless due to an increase in the antero-posterior dimension of the lens, owing to the lack of tension or pressure, caused by the absence of a portion of the suspensory ligament. The refraction through the phakic area is myopic, but up to the present time his refraction has not been carefully determined. While not pertinent to this particular case, but of interest in connection with true coloboma of the lens, it is interesting to note that Wessely has had the opportunity of studying a case where an iridectomy was performed for buphthalmus when the patient was five months old, and at the age of three years a distinct coloboma of the lens border could be noted in the iridectomy coloboma. The same observer has experimentally produced coloboma of the lens in rabbits, by performing an iridectomy on the first day of life.

Another interesting feature is the pathological cupping of the discs. Brailey, Collins, Batten, Spanyol and others have recorded cases of glaucoma secondary to aniridia, in fact Marshall states it is the rule rather than the exception, and that he has never seen a case where it did not supervene. Seefelder, however, has examined microscopically the eye of a

patient 25 years of age, where he excluded a glaucomatous condition of any duration, owing to the perfectly normal condition of the papilla, but the tension of the eye had not been determined. In addition to this, the fovea centralis was wanting. He believed that in his case the malformation was not confined to the anterior part of the eye but that various ectodermal structures also had been affected. Collins some years ago pointed out that the predisposition to glaucoma was due to the fact that there was always present a very rudimentary iris stump and that tags of adhesions passed from the anterior surface of the iris to the ligamentum pectinatum. Practically the same thing is referred to in his work with Mayou, where they say the ligamentum pectinatum is not infrequently ill-developed and adhesions stretch from the stump of iris tissue to the posterior surface of the cornea.

Such is evidently the condition existing in the patient whose history is above recorded, the dislocated lens probably making further encroachments upon the filtration angle. Despite the pathologic cupping of the discs in this patient, when he was last seen I could not detect any rise in the intraocular tension, but this has been observed in other cases, notably the patient whose history was cited by Blair and Potter. Further it is well known that in typical cases of buphthalmus, where in some cases the underlying pathological changes are closely allied to those found in irideremia, the high tension sometimes subsides and we have the clinical appearance of the bullock's eye associated with normal tension. Collins and Mayou suggest that the breaking through and stretching of the congenital adhesions at the filtration angle, may be the explanation of the arrest in the progress of this condition. In view of the pathological changes present in irideremia, it seems strange that we do not more frequently see it in association with the bullock eye, especially when we have present the additional factor of ectopia lentis. In these cases we would have present at least four factors that would predispose towards a rise in the intraocular tension, namely, adhesions of varying density blocking the filtration angle, possibly compression of this angle by the dislocated lens, possible alteration of the intraocular fluids by ciliary irritation, and finally practically complete absence of iris tissue.

A CASE OF PULSATING EXOPHTHALMOS.

BY GEO. H. MATHEWSON, M. D., MONTREAL, CAN.

Pulsating exophthalmos may arise spontaneously or result from traumatism, but the traumatic variety is much more common.

The pathological condition which produces the pulsating exophthalmos in the traumatic cases is nearly always a rupture of the internal carotid artery into the cavernous sinus. This causes dilatation of the sinus and stasis in the ophthalmic veins, thus producing the exophthalmos. The pulsation of course results from the heart-beat being communicated to the blood in the sinus.

The traumatism which produces the condition may be direct as in the case of the injury done to the vessel by a bullet, but is usually indirect, and the result of fracture of the base of the skull as in our case. The main symptoms are proptosis, or protrusion of the eyeball, (2) Objective bruit over the orbital region; (3) Pulsation of the eyeball; (4) Paralysis of some of the extrinsic muscles of the eye.

These symptoms may be developed within 24 hours of the injury, but it is usually several months before they are fully developed. Spontaneous cure is seen in rare cases. Treatment may consist in digital compression of the carotid in the neck, or in ligation of the same. Attempts at clotting the blood by electricity and drugs have not been successful. Tying the carotid brings about cure in the great majority of cases. In a few cases the symptoms have recurred. If vision has not been damaged by injury to the optic nerve through the fracture of the base of the skull, it is generally restored.

The history of our case is as follows:

On October 8, 1910, J. N., a man of 32 years of age, was thrown from the top of a car and sustained a fracture of the base of the skull. His physician noticed at the time that the left eye was much swollen. I first saw him on November 5, 1910—just four weeks after his accident. His left eye was then very much proptosed, there was complete ptosis of the left upper lid and considerable swelling of the conjunctiva. The movement of the eyeball was very much restricted. The optic nerve and fundus were, however, quite normal. Vision was reduced to ability to count fingers at 8 feet in the upper half of the field, while it was entirely lost in the lower half. There

was no pulsation of the eyeball. The vision undoubtedly was damaged by laceration of the optic nerve resulting from the basal fracture.

On December 20, 1910, I again saw him and found the veins of the upper eyelid to be much dilated, while the eyeball was seen to pulsate. There was slight pallor of the optic nerve and slight dilatation of the retinal veins. There was no subjective bruit nor any symptoms beyond an occasional headache, though the man seemed dull mentally. Rest in bed was advised in the hope of spontaneous cure.

On the 27th of March, 1911, he was again brought to me and presented the same symptoms as before—except that the vision was almost entirely gone.

On August the 31st, 1911, the proptosis was more marked. Vision was reduced to finger movements only. When I placed my ear to the left temporal region of the patient I could hear a very loud blowing murmur. This murmur though most intense over the temporal region, could be heard over the greater part of the skull—mentally the man seemed more dull.

I advised that the common carotid should be tied by a surgeon, and Dr. Elder performed the operation on September 5th, with excellent results as regards the symptoms, though of course the vision was not improved, it having been damaged by the fracture as stated above—not by the pressure.

A month later the patient reported himself and was found to be in a good condition, there being but little proptosis, and no pulsation or bruit.

If the visual disturbance had depended on the pressure of the aneurismal mass I should of course have advised operation when I first saw him. The operation is not entirely without danger. De Schweinitz has collected 102 cases where the carotid was tied for this condition with a death rate of 10.7%. In the hands of an experienced surgeon I am sure the mortality would be very much less.

ABSCESS OF THE LACHRYMAL SAC IN A CHILD ONE MONTH OLD.

BY DR. F. HOLDSWORTH, TRAVERSE CITY, MICH.

This case I saw for the first time on May 5, 1913. The attending physician gave a history of a repeated collection of tears in the left eye since birth—April 4, 1913. The family

history was negative, except for a case of fatal meningitis in a former child and tuberculosis among the father's relatives. The region over the lachrymal sac was swelled and red, as indeed it had been for three or four days. The nasal examination showed a small quantity of discharge, partly dry, under the left inferior turbinate.

May 5, under chloroform primary anaesthesia, I slit the canaliculus with Weber's knife, and washed from the sac a considerable quantity of thick pus. I then passed Theobald's probes Nos. 4 and 6, to the floor of the nose, and irrigated the lacrymo-nasal tract with a warm solution of boracic acid. Cold boracic compresses were then applied for forty-eight hours, and a No. 6 Theobald probe was passed May 6-7-8-9-10-12-14 and 16. The nose was cleaned daily, and petroleum was applied to the inferior meatus.

The patient made an uneventful recovery.

A CASE OF PEMPHIGUS OF THE CONJUNCTIVA.

BY DR. JAMES BORDLEY, JR., BALTIMORE, MD.

It has been my privilege to see several cases of pemphigus involving the eyes, but none quite so remarkable as the one I wish here to record.

I was permitted to study the case through the courtesy of Dr. Louis Hamberger, the physician in charge. The patient, a man of about thirty-nine, had always enjoyed robust health. In the early part of the past winter bullae began to appear on his body and limbs. Diagnosis of pemphigus was made shortly after the onset of the disease. With the exception of remissions of short duration, his disease was progressive, involving the whole body, and his death occurred about four months after the onset.

The conjunctivae of the globes were filled with small hemorrhages which, in time, became confluent. The blood was so abundant that the conjunctiva was forced well over the cornea. The inner surfaces of the lids were filled with minute hemorrhages which, however, remained discrete. The eyes were kept bathed in a solution of zinc sulphate, and from time to time boric ointment was rubbed into the ocular conjunctiva.

The hemorrhages rapidly disappeared, the conjunctiva was left without a blemish, and, as long as the treatment was

constantly used, there was no return of the hemorrhages. The conjunctiva never ulcerated, the cornea remained quite clear, and the sight was never, in the least, affected. The only point in the ocular apparatus where bullae appeared was at the skin margin of the lower lids. The bullae quickly ruptured and the resulting ulcers rapidly disappeared under the treatment above mentioned.

The patient was given salvarsan, sodium cacodylate, baths, dry treatment, ointments and vaccines. The vaccines were made first from cultures grown in the ordinary way from fluid in the bullae. When these proved ineffectual, Dr. Hendry, one of the residents of the Hospital—Union Protestant Infirmary—made, at the suggestion of Drs. Fisher, Follis and myself, anaerobic cultures on human muscle by the method suggested by Noguchi and Flexner. A motile bacillus was recovered in pure culture, from which Mulford and Company very kindly made us a vaccine. This was used, and, at first, we had high hopes, as the patient became wonderfully better almost at once. Whether this was only one of the remissions of his disease or whether he really was benefited, I am not prepared to say.

CACODYLATE OF SODIUM IN A CASE OF KERATO-IRITIS DUE TO LIME BURN.

BY FRANK ALLPORT, M. D., AND ALEXANDER ROCHESTER, M. D.,
CHICAGO, ILL.

The following case is reported at this time, not because it represents a rare condition, but because it is a common one which, under the usual treatment, gives results quite unsatisfactory to both the patient and the physician. In this one case, however, we have seen such a complete recovery, resulting from the regular treatment plus hypodermic injections of cacodylate of sodium, that we believe the apparently great value of this drug in these cases should be reported.

Patient T. A. S. Male. A printer, age 21. Denies any history of syphilis. One week before he was seen by us, he had accidentally been struck in the left eye by particles of lime. He immediately placed himself under the care of a physician, and had been using hot fomentations, atropine and antiseptic eye-washes. There was a constant dull pain, much photophobia, all the symptoms of an acute iritis, and, in addition, the cornea was completely opaque.

From April 26th until May 13th, he received under our care, much the same treatment as before, except that, in addition, powdered dionin was used daily. By this time the iritis was somewhat improved, but the cornea remained almost as opaque as when first seen.

On May 13th he was given an intra-muscular injection of 7 grains of the cacodylate of sodium. From that time on, the injections were given as follows:

May 15th	7 grains.
May 23rd	3½ grains.
May 26th	3½ grains.
May 28th	3½ grains.
June 1st	3½ grains.
June 3rd	3½ grains.
June 5th	3½ grains.

During this time his other treatment was also continued just the same. Two or three days after the first injection was given, the cornea gradually began to clear, and continued to do so slowly and steadily until finally the whole cornea became absolutely transparent. With his refractive error corrected, he obtained 20/20 vision.

It is to be remembered that opacities due to lime burns are not simply scars, but that they contain deposits of calcium carbonate. It might be suggested, therefore, that the cacodylate of sodium, finding its way from the blood into the lymph channels and finally into the cornea, brings about some chemical reaction with the deposits of calcium carbonate, rendering them more soluble and more readily removed. However, that is only speculation. The important point and probable fact is that, under the stereotyped treatment, this patient would not have the clear cornea which he possesses today, and that his vision would be much lower.

The New York Ophthalmic & Aural Institute of 44 and 46 East 12th Street, New York City, which was founded by Dr. Herman Knapp in 1869, will move to its new building at 57th Street and Tenth Avenue on October 1st. The new hospital is a specially constructed seven-story building for the treatment of eye diseases.

REPORTS OF SOCIETIES

AMERICAN MEDICAL ASSOCIATION.

SECTION ON OPHTHALMOLOGY.

SESSION HELD AT MINNEAPOLIS, MINN., JUNE 17-20, 1913.

(Continued.)

The Diagnostic and Therapeutic Uses of Tuberculin in Ocular Diseases, with a Review of Some of the Claims.

BY A. EDWARD DAVIS, NEW YORK.

Abst.—In the first half of the paper tuberculin reactions are considered—their nature, the factors comprising them and the part they have performed in establishing the great frequency of tuberculous infection in the human race. Next immunity is briefly considered; then a description of the tuberculin tests and some of the more important tuberculin preparations. Then is given a review of some of the diagnostic and therapeutic results obtained by the use of tuberculins in the various ocular diseases, together with a report of personal experiences.

Phlyctenular Ophthalmia and Episcleritis. A Study of the Bearing of the Newer Research on Their Etiology as the Basis of a Scientific Therapy.

BY WILL WALTER, CHICAGO.

Abst.—This study is an attempt to harmonize the various views and theories as to etiology and tend to show their interdependence. Divides the theories into (A) ectogenous theory, which concerns bacterial invasion from without; not proved. (B) Endogenous theory embracing (1) malnutrition and auto-intoxication theory, important and fundamental, but not specific causes; (2) endogenous infection theory, consideration of latent tuberculosis as most probable source; (3) bacillary fragment theory, proved for tubercle bacilli and some evidence of occasional similar action from streptococci; toxins but finer subdivisions of fragments in harmony with colloidal chemistry findings; (4) anaphylaxis theory, important for reactivation of pre-infection, but depends on presensitivation, and hence not primary. Arguments and relative interdependence of theories considered. General and specific theory based on above findings advocated. Bibliography and cases for demonstration appended.

DISCUSSION. On papers of Dr. A. Edward Davis and Dr. Will Walter.

Dr. George H. Derby, Boston: In regard to the etiology of phlyctenular disease and episcleritis there is more and more evidence being presented each year to show that these cases rest on a tuberculous basis. Without any question the majority of all observers believe now that the diseases are tuberculosis. Ninety per cent of the cases of phlyctenular disease give a positive tuberculin reaction, and it seems to me that 10 per cent is a small percentage of error from any test of that sort. We do not know why this percentage do not react, but I feel sure probably all of them are tuberculous in spite of the fact that they do not react. A positive reaction to tuberculin tells us that the patient is suffering from tuberculosis, while a negative reaction is not so important.

In regard to the general physical examination of these patients, if they give a negative report it means absolutely nothing. There are often healed lesions of tuberculosis which can by no means be found. Of course a positive report is good evidence. If phlyctenular disease of the eye rests on a tuberculous basis it places a large load of responsibility on the ophthalmologist, because it is one of the most frequent diseases we meet in our clinics, and it means that we see each year many children who have been comparatively recently infected with tuberculosis, and any tuberculosis expert will tell you that is the time to get cases of tuberculosis—when they are young—and it is up to us to take hold of them and follow them up and see that they get proper general hygienic treatment; see that they are taught how to live properly, and if we do that we will find that they will disseminate the information among others in the community. Another thing we shall obtain by following them up is that in their families we shall find cases of active tuberculosis. That has been my experience to a large extent, to see a child with phlyctenular disease in the hospital, and send a nurse to the home to find a patient with active tuberculosis. In the fight against tuberculosis the ophthalmologist if he takes these cases up in the way he should can aid greatly. Beside that, we are aiding in the conservation of vision, because although very few of these patients actually lose their vision as the result of phlyctenular disease, nevertheless patients that have frequent attacks are very apt to have the vision so badly damaged as to be disabled

industrially to a very considerable extent. Therefore we can aid very materially in the conservation of vision.

Every hospital, it seems to me, should have some sort of special organization to take care of its cases of phlyctenular disease. I think they are best handled by means of the group method; and one cannot handle them without some sort of a follow-up system such as a social service department, by means of which these patients can be followed to their homes and correction made of the faults in living that are found there. It is very easy to cure a single attack, but to prevent future attacks is the problem, and that is a much harder one to me.

In regard to the use of tuberculin in phlyctenular diseases, I do not think it is often necessary. Most of these patients get well without tuberculin. Occasionally we have very obstinate cases, and in these, even using tuberculin, it is often extremely difficult to prevent them having repeated attacks. We use tuberculin in Boston in a certain number of cases, but in by no means the majority. Do not let us delude ourselves that in using tuberculin we are doing everything necessary, because it is not one-tenth as important as general hygiene. I repeat that also in regard to tuberculosis in adults.

We have used calcium lactate in phlyctenular disease and various dietetic treatments and we have not been very well satisfied with any of them and have not been able to draw any conclusions.

In regard to the tuberculin treatment in severe ocular tuberculosis, I believe in small doses. I do not believe it is safe to get a reaction or to fall just short of getting a reaction. I have seen one patient treated with large injections with the purpose of obtaining a reaction and that patient is blind today as the result, I feel confident, of the repeated reactions she got. Dr. Gamble is quite right in what he says. Many of these cases will get well of their own accord whether we treat them or not.

With regard to the place of injection, between the shoulder blades, sometimes in the arm. In cases of special sensitiveness there is one situation better than all the others, and that is described by some as the northwest corner of the buttock.

Did I understand Dr. Davis to say that following the von

Pirquet test he got a general, local and focal reaction in some patients?

Dr. Charles N. Spratt, Minneapolis: (With exhibition of a patient with tuberculous episcleritis.) This patient shows the characteristic tendency of the disease to relapse. The patient was seized with terrific pains and redness of the eyeballs eleven weeks before I saw her, and examination showed tuberculous inflammation of the sclera in the upper outer quarter. I gave 2 mg. tuberculin. This was followed thirty-six hours afterward by a local, focal and general reaction. The symptoms, as I recall, cleared up almost immediately after this diagnostic dose. She was under treatment some nine months, having had no pain after the first week. She has had one or two exacerbations since. I saw her a week or ten days ago for the first time during the past year. The eye reddened up in the last few days. Tuesday it was white. This is her menstrual period. The hot water has irritated the eye. The cornea became involved after the sclera had apparently cleared up. There are several small lesions similar to those of phlyctenules and these, it seems to me are what is now causing the trouble. She received altogether sixty-two or sixty-four doses of B E, trying to avoid a reaction. The first dose was one-tenth thousandth mg. and it was run up to 2 mg. The question comes up here of the small doses and doses producing a reaction. I talked with Hermann in Baltimore who says it makes little difference whether we use one variety of tuberculin or another, but to avoid reactions. I have been impressed in every case with the remarkable improvement immediately after a dose which produces a slight reaction.

Dr. A. E. Bulson Jr., Ft. Wayne, Ind.: I want to take exception to what has been said concerning large doses of tuberculin. I do not believe we are justified in giving large doses for therapeutic purposes. I quite agree with what Dr. Gamble and Dr. Derby have said regarding the efficacy of small doses continued over a long time. I believe we can stimulate the production of antibodies by small doses as well as by larger doses and it is far safer. I also want to commend Dr. Davis for giving the von Pirquet test first. I do not see the necessity of subjecting the patient to the subcutaneous test previous to the von Pirquet. It seems to me the von Pirquet has its indications, and oftentimes we can avoid the subcutaneous in-

jection if we use the von Pirquet first. I do think, however, when we want definitely to decide the question that there is nothing equal to the subcutaneous test. I agree with the necessity of carrying this injection over three tests, giving a small one first and watching the reaction, and giving afterward anywhere from 3 to 10 mg. to test the possibility of getting a reaction. I think if I got such a reaction as Dr. Gamble reports in his case of neuritis I would be scared to death. I understand it occurred as the result of a considerable dose. If a small dose had been given in the beginning no such reaction would have occurred; and while the effect of the large doses for diagnostic purposes was perhaps beneficial, the administration for therapeutic purposes of small doses would probably have accomplished the same thing. I cannot quite agree with Dr. Derby as to the value of dietetic and hygienic treatment without the administration of tuberculin. It is all right down in Boston where they do not have sunshine and fresh air. Some of us in the country live under favorable circumstances, out of doors a good deal of time, and have healthy food and rather decent hygienic conditions all around, and we find these cases, no matter how carefully we attend to the diet and how much we put them out of doors—practically the whole twenty-four hours—they do not get along as well as they do when we administer tuberculin. I have seen quite a number of patients with phlyctenule who began rapidly to improve when given tuberculin who did not show such improvement on the old time treatment which we are all familiar with. Again I wish to emphasize that we give our tuberculin in small doses. I do not believe it makes much difference what preparation we give. I have used the old and the emulsion. At present I am using the emulsion and like it very much; in fact, I use the emulsion recommended by Dr. Davis, giving it hypodermically in small doses every five to seven days and watching carefully the results, and in my experience it has been very satisfactory.

Dr. S. L. Ledbetter, Birmingham, Ala.: I do not know whether I am going to be out of order when I take the other side of the question. I learned to treat these things before we knew anything about tuberculin, and when I began the use of it I used a little experimentally for diagnostic purposes. I have been treating these things for thirty-three years, more

or less, and I never had a case that didn't get well. If they get well without tuberculin I can not see any very great necessity for using it. I can recall but two cases that have ever been chronic. I know one young woman, married, with three children, whom I began treating when she was a year and a half old. This woman had a few recurrences but never had much trouble. Her mother was tuberculous. The child never developed any symptoms except the phlyctenules. I only recall one patient whom I treated who afterward died of tuberculosis. Whether the phlyctenules were a safeguard I don't know. About one out of every hundred developed tuberculosis whether they have phlyctenules or not, so I would not have thought very much of having one or two patients who had had phlyctenules die of tuberculosis. I do not want to carry that too far. I have never had any great trouble in treating phlyctenule with good fresh air, good food and tonics. I have tried testing by the von Pirquet method, but I find the patients all get well anyway so why should the patient be worried with it.

Dr. Mark J. Schoenberg, New York: Regarding the diagnosis of ocular troubles, we have been told that a general and focal reaction after the injection of tuberculin means tuberculosis, but we neglect to give sufficient attention to the counterpart of the question. How can we tell that the case is tuberculous when the reaction is negative? I expected to hear this discussed. We know there are cases of tuberculosis positive in character which give a negative reaction to tuberculin. Is this the fault of the tuberculin or is it the fault of the patient? Very little is said in the literature about the work done with tuberculin of bovine origin relating to the pathology of ocular tuberculosis. Shick in 1911 published an article on tuberculin from bovine bacilli injected into rabbits. They are very much more virulent for the eye in rabbits than the human. Thus we have a range of difference and there may be a large range of difference for human beings. I think this part of the subject has not been covered at all. In using the intradermal injections of tuberculin for diagnostic purposes we sometimes get a reaction when we use the human and we have to switch over to the bovine when we find there is no hypersensitivity to the bovine tuberculin. Another point is our lack of knowledge of why some cases do and some do not respond to

tuberculin although both classes of cases have tuberculosis. Again the question comes up, Is there something wrong with the tuberculin, or with the patient, or with both? I have enjoyed very much the paper of Dr. Davis but I have missed that part of the subject relating to possible mixed infection which may be present in ocular tuberculosis. We know that phlyctenular keratitis and conjunctivitis may be due not only to the bacilli, but to foci of streptococci. The gentleman may be right when he says we are cured with and without tuberculin, so that it may not be due only to tubercle bacilli. I should like to hear Dr. Davis talk about mixed infection, such as is found in tuberculosis of the lungs. I think the main difficulty in lung tuberculosis is not a pure tuberculosis. Incipient cases are easily cured. The great difficulty is with those cases in which added infection comes on top of the tubercle bacillus with the staphylococcus and the streptococcus, and the same may be true in ocular troubles.

Dr. Walter Baer Weidler, New York: About a year ago Dr. Thomson who is chairman of the scientific work at the Manhattan Eye and Ear Infirmary made some observations in regard to tuberculin in the report issued each year. I was able to observe eighteen or twenty cases, which included phlyctenular conjunctivitis, episcleritis and tubercular keratitis. In the further work continued from that time I have contented myself with the von Pirquet reaction alone. I have not used subcutaneous injections. When I receive a positive reaction in any of these cases I immediately proceed with the treatment and use tuberculin, and not in a single case have I failed to cure the condition. I have not as a rule used anything else in the treatment, the local treatment being simply boric acid and atropin. In those cases which come to and from the hospital I do not even suggest hygienic measures because I wanted to test the tuberculin treatment. It is also of interest that in some cases of tuberculous keratitis which gives a history of having had some condition years before with repeated attacks, these cases will clear up with the use of tuberculin, if it appears in one eye, and then the same condition will appear six or eight months later in the other eye, showing that there can be a recurrence even after tuberculin. A case of tubercular choroid was of especial interest.

Tuberculosis of the Eye and Tuberculin Case Report No 1.

J. Morasco, age 19, Italian.- Family history negative. had tubercular glands removed from the neck about ten years ago. Three weeks before coming to the hospital noticed floating opacities before the left eye with gradual loss of vision. No previous eye trouble and the vision test revealed the following: O. D. 20/15; O. S. 5/200.

Admitted to the hospital for treatment and the usual treatment of such cases was followed, i. e.: Bed, pilocarpin sweat, calomel purge, milk and eggs and tonics of iron, quinine and arsenic, atropin and boric wash. This was continued for a week or ten days without any improvement of vision and at this time a von Pirquet was done with a most decidedly positive local reaction, Wassermann negative. Tuberculin injections were started at once using the T. E. and the vision began to improve within a few days and continued to do so as the history card well shows. The first dose was gtts 11—of a 1—10,000 and increased two drops every 48 hours, and inside of 11 days the vision was 20/200.

Recurrences have taken place in the form of a slight diminution of the vision, only a slight haziness and blurring without any real decrease of the visual acuity and a second von Pirquet was positive and re-injections over a period of a week relieved the fogging.

The ophthalmoscopic examination of the eye on admission revealed the following: O. S. floating opacities in the vitreous dust like, disc oval 7x8 long axis 90, edges blurred and indistinct. There is a light bluish area in the region of the macula above, slightly elevated which looked like an oedema of the retina. This later seemed to resolve under the tuberculin and several white spots appeared forming a circle in the area of swelling and later still pigment appeared and now there is an area showing this sclera and clumping of the chorioidal pigment. Vision 5/4.

Katie Klos: age 26, Hungarian, several members of her family have died from tuberculosis. General appearance of the patient suggests anything but tubercular tendencies. This however proves nothing. Left eye was enucleated two years previously because of irido-cyclitis. (Dr. Schoenberg). O. D. showed pericorneal and deep scleral injection, iris muddy, pupil undilated.

Ophthalmoscope: O. D. Vitreous was almost completely filled with a heavy exudate which moved slightly with the movement of the eye. Disc seen but very indistinctly. Vision 20/7-2 Wassermann negative and von Pirquet decidedly positive and T. E. was used with the return of the vision to normal after 6 weeks.

Dr. Melville Black, Denver. Colorado having somewhat of a reputation as a health resort for tuberculous people, it may possibly interest you to know that we see comparatively little tuberculosis of the eye either in adults or in children. Many of the people who come there on account of tuberculosis afterward become the parents of children and it would be natural to expect if there is very much in heredity that these children would be likely to be afflicted with joint and general tuberculosis of some sort, either in early life or later. Yet I think most physicians will bear out my statement that this does not seem to be true. Of course we see tuberculosis of the eye in Colorado, and if we accept the modern investigations that phlyctenular keratitis is a manifestation of tuberculosis somewhere in the body, and that the local infection is either directly or indirectly a tuberculous process, we would naturally expect to see more phlyctenular keratitis. But it is not true; we see very little, and we almost invariably see it in the ill-fed, the ill-nourished, children who have not had opportunity to be properly fed from the cradle up. We do not see phlyctenular keratitis in the children of the well-to-do unless in exceptionally rare instances. I have had more or less experience in the use of tuberculin and desire to line myself up with those who are using it, and I believe it is a means of arriving at a more definite, positive end than by the usual methods.

With regard to the paper of Dr. Walters, I have been involved in a maze of conflicting emotion after reading this classical paper, and I am somewhat afraid that it would take about as long for me to understand his meaning as it would for a star of lesser magnitude to reach the earth. In consequence I hasten to agree with the author for fear of exposing my ignorance. I trust, however, that his sense of humor will enable him to appreciate my position, and that he will continue to knock at the doors of our understanding until we let him in.

Dr. J. S. Wyler, Cincinnati: I want to agree with Dr. Schoenberg and with Dr. Black in some of the statements

made. I do not think that tuberculous conjunctivitis or keratitis is purely a tuberculous condition. We have been able to sensitize animals to tuberculosis where the sensitization has failed to produce phlyctenular condition in the animals; but we have sensitized them and then with the assistance of the *staphylococcus aureus* have produced tuberculous phlyctenules in rabbits and guinea-pigs. This goes to show that it is a mixed infection on a tuberculous basis. I have had quite a number of cases of young children who developed phlyctenular conjunctivitis and keratitis who in later years have shown no pulmonary or general tuberculosis, so that I believe it is the staphylococcal infection on a basis of tuberculous origin that causes the condition.

DISCUSSION. Dr. Wm. E. Gamble, Chicago: The meagerness of the knowledge we have of the composition and nature of tuberculin, as well as of its effect upon the tuberculous patient, naturally gives rise to much diversity of opinion regarding its use for diagnostic and therapeutic purposes.

It is to be hoped that in the near future a more uniform method of use will come about, based upon fuller knowledge.

Some information which appears to be fundamental has recently been acquired, regarding the effect of tuberculosis and tuberculin upon the animal and human organisms.

Roemer has demonstrated that a guinea pig with tuberculosis cannot be reinfected; and those of us who have used tuberculin upon tuberculous patients have observed that after its prolonged use the system does not react to diagnostic doses of old tuberculin. This want of response is of the nature of an immunity. However, there seems to be this difference regarding this antagonism of the system against infection with the living organisms and the therapeutic use of tuberculin, that the former give a more or less continuous immunity, while the latter produce only a temporary effect. In our patient, just how long and to what degree this increased resistance, produced by tuberculin lasts, we know little about.

Rothe and Bierbaum have demonstrated that the injection of whole bacilli, killed by desiccation or by treatment with alcohol, injected intravenously into cattle or horses, in a dose of from 30 to 50 mgs. gave a prompt production of antibodies, which reached its height on the 7th day, and this protection against virulent bacilli lasted more than a month.

These anti bodies, tested, were the complement-fixing ambiceptor and the precipitin. This work has seemed to foreshadow a practical test tube method of testing the antigenic power of commercial tuberculins, thereby making standardization possible.

These workers demonstrated that certain tuberculins now on the market, had little or no antigenic power. The practice of using dead bacilli, that is tuberculin T. R., for therapeutic purposes rather than the filtrate, seems to be justified by these experiments.

The fundamental principle announced by Wright a decade ago, that infinitesimal doses of tuberculin are often all that is necessary to stimulate the anti body formation, is not fully appreciated by some of us. I find my friends practicing the method of von Hippel, of more or less rapidly increasing the size of the dose, being governed by the temperature. I believe that safety and efficiency in the use of tuberculin for therapeutic purposes lies far below the dose that produces a clinical response. Experience leads me to the conclusion that a dose varying from 1/500 to 20/500 mg. twice a week will prove sufficiently large for most cases of tuberculous disease of the eye.

I remember a case of tuberculous iritis that did well under minute doses, and, following the plan of von Hippel. I ran the doses gradually up to 1.30 mg. T. R. While there was no extra temperature, the patient's appetite failed and a feeling of malaise was present, lasting during the time of the administration of these doses. After running it down to about half, he improved so that during a period of two years I have never increased the dose in his case to more than 1/40 mg. every three days.

Fortunately, the ophthalmologist is not often called upon to treat tuberculous diseases of the eye in which general infection is present. The cases he should treat are those in which the disease is of a focal nature and clinically it is rare to find tuberculosis of the eye when general infection can be demonstrated.

It is in these focal cases that tuberculin is of undoubted value, as pointed out by Theobald Smith. It would seem, in some intraocular cases especially, that the organism has successfully resisted the disease, excepting in this one place, and

that what is especially needed is to increase the resistance of the system to a greater degree in order to eliminate this last vestige.

We hear much of the contra-indications for the use of tuberculin, as in diabetes, organic heart disease, etc. My opinion is that these contra-indications apply only to over dosage, and not to its proper therapeutic use. Unfortunately, to make a diagnosis of tuberculous ocular disease we may need to give a sufficient dose of old tuberculin to produce some untoward symptoms; but there is little occasion for a harmful dose to be repeated. Many cases of tuberculosis of the eye would get well of themselves under proper hygienic conditions.

In most cases the temperature cure is a very delicate guide to the administration of tuberculin, but, as in the case mentioned above, the symptomatic response may be minus this symptom. In this connection, a word should be said about old tuberculin. It is now known that the toxicity of tuberculin increases with age, so that an unnecessary toxic effect may thereby be experienced. Fresh solution should be used.

Regarding the danger to the eye of a diagnostic dose of old tuberculin, I think it is greatly exaggerated. It was my privilege to study the action, subcutaneously, of 4 mg. old tuberculin to a man weighing about 135 lbs., suffering with tuberculous optic neuritis. In addition to the classic systemic reaction, he had some tenderness of the eyeball, followed in about 17 hours by reduction in vision in the diseased eye only of from 20/40 before the injection to 20/100 48 hours after the injection, the reduction in sight lasting three days, during which time no changes perceptible to the ophthalmoscope were seen in either eye.

Another case, a doctor, weighing 270 pounds, suffering with tuberculous neuro-retinitis in the left eye, was given 2½ mg. old tuberculin. In addition to the systemic symptoms he had reduction of sight in the diseased eye only of 20/20 before the injection to, 48 hours later when the vision was the worst, 20/100. This reduction in sight lasted a few days. Both cases recovered from the diseases after prolonged use of T. R., with normal central vision. The first case has a few relative scotomata in the peripheral field.

In this connection I wish to say, that in cases of optic neuritis and neuro-retinitis of obscure origin, diagnostic doses

of old tuberculin may clear up the diagnosis by causing definite reduction in sight in the diseased eye coming on about 17 hours after the injection and lasting for three or four days. I reported this specific reaction two years ago, and take this opportunity of again calling the attention of the profession to it.

Dr. J. A. Donovan, Butte: I have agreed to some extent with Dr. Ledbetter that many of these patients will get well, or that most all of them would get well, until I found out different. In one particular instance the man had a relapse five times. I put him on tuberculin treatment, when I had exhausted all the materia medica, and he got well. Following that case, a patient was sent in to have the eye enucleated. Having got such nice results from this case with tuberculin I used it and much to my surprise he regained vision to the extent of 50 per cent and a good eye.

I have treated six cases to completion and have quite a number of cases under treatment by physicians in different places. These are the cases that I have trouble with. It is pretty hard to explain to the other fellow what you want done and what you mean by reaction and dosage. We talk about small doses and large doses, and what you mean by a small dose I don't know, and what I mean you don't know. I have started in with the fifth dilution, which makes about 1 drop of old tuberculin in a gallon and a half of water. Then I inject 3 minims. If I don't get a reaction I inject 5. If I get a reaction, just as it begins to subside, from three to five days, I give a second dose. If I have quite a reaction I repeat the same dose or smaller. If I get little reaction I add 2 minims to the dose. Formerly I waited until the patient was normal before giving the second dose. I read somewhere that someone got better results by following it up more quickly. In my early experience I got considerable reaction. Two were alarming. I changed from one preparation to another, giving the same dose, not knowing that the two preparations were not standardized the same, and I had a fearful reaction. Fortunately the patient got well.

Dr. Hiram Woods, Baltimore: Dr. Donovan made a remark which I would like to follow up. He said the patient suddenly became blind from two great reactions. I have had a dread of the constitutional reactions in chorioidal trouble. I had a case the past winter which I became a little uncertain

about, and I fear it may be one of the sort of cases that the doctor speaks of. A lady 37 years of age with a clean history came to me with an old chorioiditis in one eye, the foveal region having been involved, with no central vision. The other eye had 20/15 vision, a normal field but a definite hyperemia of the disk; no swelling at all, but the kind of red disk that makes you feel as though something was impending. The question came up as to what was the cause of the chorioiditis in the old eye. She had, as I said, an entirely negative history. A careful internist said so, with one exception—the urine indicated intestinal intoxication. She was given a Wassermann, which was negative. The temperature had been taken regularly for four days and there had been no elevation. The tuberculin test by 1 mg. of tuberculin was given and there was no systemic reaction. Then she came in three days afterward with floating bodies in the other eye and the vision fell from 20/15 to 20/40. The pathologist had received some fresh luetin from the Rockefeller Institute and he gave her a test. There was a most violent positive reaction, and as a result a necrotic ulcer which took months to heal. She developed rapidly chorioidal exudates within a week after the tuberculin test was given without any systemic reaction. I don't know the explanation. The luetin test would look as though it was syphilitic with a negative Wassermann.

Dr. William Zentmayer, Philadelphia: One essayist speaks of the treatment of my predecessor at Wills Hospital, Dr. Norris. He does not state what it was. The treatment was fractional doses of calomel three times a day and some directions in regard to regime. The child was not to have any sweet things, no fried food and plenty of fresh air. The only rational explanation of that is that peristalsis was slow and the calomel was given for that reason. But Dr. Wilder will tell you why that is rational treatment.

Dr. W. H. Wilder, Chicago: There is one phase of the treatment for these cases which cannot be so distinctly stated as positively tuberculous, and that is in regard to the fresh air treatment. I had this impressed on me last year when I was in Munich by Professor Eversbusch, who unfortunately died last summer. He was very much interested in the subject of the treatment of scrofulous patients, particularly the children, who we know are often so very obstinate to any local

treatment, and it illustrates the great importance of general constitutional treatment and particularly fresh air. Eversbusch believed in this and he established in the Bavarian Alps a sanatorium. It was a beautiful place. He took me out there to visit. He was treating about thirty or thirty-five waifs from Munich who were not amenable to treatment in his clinic, getting excellent results. It brings up the important question that these patients ought to have this fresh air, and we as ophthalmologists ought to recognize that and get the co-operation of the internist so that we can treat some of the patients at sanatoriums. Without that constitutional treatment I do not believe we can get the influence on these cases with any measures that we employ, because we must recognize the necessity of fresh air and the benefit to the general nutrition. As to tuberculin as a diagnostic agent, unless you get something like a focal reaction you are not warranted in concluding that it is tuberculous. You may get a general reaction from tuberculin subcutaneously, but I cannot see how you can say a lesion in the eye is tuberculous unless it gives a focal reaction. The presumption is that it is. Failing in that positive reaction you are just as much at sea as before. Two or three years ago I had the honor as chairman of presenting a report of a committee on tuberculosis. In several of the cases reported on I had tried this treatment. Instead of using the tuberculin subcutaneously in small and repeated doses I introduced the tuberculin into the conjunctival sac, starting the dose at 1 10,000 mg. and gradually increasing it to the point where I got the faintest reaction, and my experience tells me, that although it may be dangerous to employ this method for diagnostic purposes, yet with every much attenuated doses it may be possible to treat cases in the conjunctival sac. This may ultimately be the proper method of treating some of these cases.

Dr. Oscar Wilkinson, Washington, D. C.: I want to add to Dr. Wilder's remarks that proper food in these cases is almost as necessary as fresh air. They occur, as is well known, among a class of patients who are poorly fed. One speaker said he had seen the cases among country folk with plenty of good food. It is known that country people are more poorly fed than city people. The variety they have is less than that of city people and it is often less well prepared. In the second place we should not forget the intestinal antiseptics. For instance, Dr. Burns told us that the bichlorid of mercury intern-

ally was almost a specific. I know that fresh air, good food, the absence of sugars and sweets and internal antiseptics, and it was the exception that we ever had a chronic case of phlyctenular ophthalmia.

Dr. A. E. Davis, New York: I would answer Dr. Derby by saying that I have seen two cases of positive Pirquet test with general focal, and local reaction. Within two or three days it began to clear up, although the patient had been treated for a month. The patient was given three or four doses of the emulsion and was well in three weeks. The patient was at first given .25 mg. with no positive reaction.

I do not believe in forcing the patient, but do believe in getting up to the physiological effect. How do you know you are getting the effect? There is no other way that I know of except by the temperature and general reaction of the patient. I beg you not to forget the patient. If you get the negative phase of the disease where the patient is reduced, we can take the opsonic index. McCabe and Wright both make this opsonic test in the other infections and in some cases of suspected tuberculosis have found the streptococcus.

I admit that cases of phlyctenule get well themselves. They are latent, inactive, to begin with. But we want to prevent their return. That is the point. I do not see why Dr. Ledbetter gives a diagnostic dose if he pays no attention to it in the treatment.

Dr. Ledbetter: By the time I get through with the diagnosis the patient is well.

Tuberculin does not act as a remedy itself; it stimulates the body. If you don't get a reaction stop it. Watch the temperatures. Watch the patient. You are dealing with a powerful toxin. It is only an adjunct in the treatment.

Dr. Will Walter, Chicago: There are certain inconsistencies in the argument which gives the tuberculin diagnostic test of 2 mg. and then is alarmed at giving large doses for therapeutic purposes. Large doses will produce death in guinea-pigs and you will find some hemorrhagic extravasation about the foci. With the minimum dose there will be intense hyperemia in the foci. With the maximum dose there was hemorrhage in the spleen and infiltration of the peribronchial glands in our experiments.

Dr. Bruns spoke last year of the irreducible minimum of

10 per cent which went to show that the failure of the von Pirquet test was an argument against the tuberculin reaction. I think we have a very good reason for this. In the early days of the Wassermann reaction we might get a negative, but when you use a different strain of spirochete you get a positive. The Wells laboratory uses five strains. This means that we must use homologous and presumably the same strains of organism to get a positive reaction. In the same way Irons has failed until he got the same strain the patient had, when he got a positive reaction. This shows that the tuberculin will fail in a large number of cases because we have the possibility of a very different strain, and I think Dr. Schoenberg meant to convey that, when he spoke of the bovine and human tuberculin. We might well have a negative reaction with a bovine tuberculin and even with a human strain.

The Temperature of the Conjunctiva.

LUCIEN HOWE, BUFFALO, N. Y.

Abst.—If two thermo-couples are placed in a circuit and one heated or cooled more than the other, the difference in temperature can be registered on a galvanometer. If one such couple is introduced into the conjunctival sac and another into the mouth the difference in temperature is registered by the galvanometer. The couple described measures easily 0.06 of a degree, or even 0.015 C. The new data obtained by these measurements are: The temperature of the culdesac near the outer or inner canthus is from about 0.3 to about 0.4 C. lower than that of the mouth; the temperature immediately over the cornea is still lower; it is possible to measure the extent to which cold or hot applications change the temperatures of the conjunctiva. It is probable that the thermocouples described will prove of value in indicating changes of temperature in the globe itself and metabolic changes in "eyestrain."

DISCUSSION. Dr. Edward Jackson, Denver: It is very difficult to discuss a paper of this kind, but it is suggestive, and it suggests to me certain possible applications and also a question or two which may be of practical importance. Probably it is impossible that such an apparatus should come into clinical application until it has been worked out into a somewhat permanent form—standardized, in a way—so that it can be managed by different men, so that any serious personal equation will be eliminated and so that the results will be fairly constant. Then I think we should have to have a con-

siderable amount of laboratory work with it to determine facts to be observed in connection with disease; and the thing that first suggests itself is the therapeutic application Dr. Howe has mentioned. In the direction of the reduction of the temperature of the eye it seems to me likely that our therapeutic measures cannot be extended very greatly; but with some accurate means of determining what we accomplish by it, it does seem to me that heat could be used considerably more freely and more effectively than it has ever been used. It was pointed out a good many years ago that the eye tolerates very high temperatures on the surface. Dr. Lippincott of Pittsburgh recommended for corneal ulcers raising water to the boiling point and dropping it as quickly as possible on the ulcer. So that, if we knew what we were doing and what could be done, heat could be applied more effectively than it has ever been applied in the ocular therapeutics.

The question has been running through my mind as to whether the mouth is the best point of comparison. I think in the beginning it may be well to compare the temperature of the eye with that of the mouth. I can see the value of experiments continued along that line; but it seems to me when it comes to be applied as a clinical method it would be better to compare the temperature of the two eyes. I should like to ask Dr. Howe what reason there is for thinking that would not be a better line of investigation.

Dr. Melville Black, Denver: There are two or three points in connection with this demonstration, and one is. I think, in regard to how long it is necessary to make an application of heat or cold to either raise or lower the temperature of the part and have it maintained. For instance, we have been in the habit of making hot applications for about five minutes. We believe that after that time the hot applications cease to be of benefit and are detrimental. This procedure, it seems to me, ought to explain why. It may be that after the application of heat continuously for a certain period of time we would find by this apparatus that it does not change the temperature of the conjunctival sac, and that possibly is also true with regard to cold. We know that we can apply cold for a considerable time without detriment, and it would be interesting to know what thermal changes there are in the sac after one or two minutes, for instance. I would like to ask the essayist more fully to explain how he made his eyes cold;

that is, he speaks of making ice applications. There are many different ways of making ice applications. Has he used the ice bag with pulverized ice, or ice pledgets, or gauze applied for half a minute, and how much reduction of temperature was occasioned by this? I have failed to get in the author's paper answer to these questions to my satisfaction. It seems to me there are a number of very practical uses for this method of determining the temperature of the conjunctival sac.

Dr. Allen Greenwood, Boston: I wish to call the attention of the members to the experiments of Tilbury of Scotland, who, not using a delicate instrument like this, tested the temperature of the conjunctiva and cornea and found that they were several degrees Fahrenheit lower than the ordinary temperature. With the lids closed, the temperature was raised one or two degrees, and with the lids open lowered the same amount. From that fact and from the fact that bacteria grow slowly when the temperature is reduced, he worked out a theory of treating corneal conditions by such means as allowed the patient to keep the eyes open all the time, and he proved conclusively to himself that the lowering of the temperature brought about by the exposure of the cornea to the air inhibited the growth of germs in ulcer of the cornea. This is right along the line of what Dr. Howe has been doing skillfully and scientifically.

Dr. Mark J. Schoenberg, New York: I should like to call attention to a possible error Dr. Howe has made. He used 5 per cent cocaine in the conjunctiva, which is vaso constrictor, and this might reduce the local temperature. He has found the temperature about .4 degree lower on the conjunctiva than in the mouth. If Dr. Howe had used a solution of cocaine in the mouth at the same time he used it in the eye, then the control, in my mind, would have been perfect. I would suggest the use of holocain which has no vasoconstrictor action. Otherwise I should like to express my admiration for Dr. Howe's work, which is so carefully done and is so interesting and of such great physiological significance. For instance, in studying the intraocular temperature of normal animals and in eyes which have been subjected to various injuries and pathologic conditions, by this means we could learn something of the temperature of the interior of the eye in certain pathologic conditions. Dr. Jackson called attention to the point that the temperature should be compared in both eyes at the

same time. In tuberculosis of the lung it is found that the temperature in the axilla is higher on the diseased side. Even the temperature of the skin has been measured by special thermometers and it has been shown that the temperature of the skin is a little higher on the side of the tuberculous lung. The same thing could be made out with the temperature of the conjunctiva, as to whether pathologic changes were going on.

Dr. Wm. H. Wilder, Chicago: I think this demonstration has its practical bearing. We are all acquainted with the clinical fact—an empirical one—that hot applications do benefit certain deep seated affections of the eyeball. The supposition has been since the Bier experiments that we do actually raise the temperature of the part to which we apply the heat, quickening the circulation, bringing fresh blood where stagnant blood was, and antibodies to combat the infectious elements. It would be an extremely interesting practical point to know if we are using hot applications right to increase the temperature so as to produce increased circulation through the deeper structures of the eye. I believe these experiments may be able to elucidate some of these things for us.

Dr. George H. Price, Nashville: It is a well known fact that all the surfaces of the body and the internal structures differ in temperature; the eye, ear and nose show variations. So it is in the cases Dr. Howe calls attention to. There is one important fact about the application of heat to the skin, the eye or other part of the body. Living substances will stand very high and very low temperatures. A fish may be frozen up in ice and thawed out. Cold retards inflammatory processes due to germs. We can reduce the temperature until the germ is killed, but the tissue is also killed. Heat will destroy any germ which has protoplasm which can be coagulated by heat. Increase of heat brings about a rapid development of germs, up to a certain point; then the tissue dies and the germ may die also. The question is which will die first. If you can hold in abeyance the production of the germ about the eye you will check the disease.

Dr. W. H. Wilder, Chicago: How about so-called non-infectious conditions of the eye?

Dr. George H. Price, Nashville: It might do some good in such instances; but we cannot reduce the temperature so

low absolutely without injury to the structures and destroy the germs; but we can reduce it so low that you will almost destroy the tissue and stop the action of the germs, but before the tissue has time to recover the germs have destroyed it.

Dr. Lucien Howe, Buffalo: I have been cudgeling my brain over many of these questions, but some new ones have been suggested. The earlier experiments were conducted with the mercurial thermometer. What has been presented here is a mere digest of the apparatus and a suggestion as to its application. During the past spring I had a young man from the Technical High School who knows about electrical apparatus work with the patients on these different questions concerning the application of heat and cold and we are working them out. I think there is one or two years' work on that subject, just as with the ergograph that I presented last year, and when the answers are ready we will have a number of curves to show. It takes a great many to come to any conclusion. As to the comparison of the two eyes, that has occurred to us, but it seemed desirable at first to take the mouth as a standard as being most convenient. It is difficult to make the application to the two eyes at once, but it will have to be done. As to the interior of the eye, I have also measured that in two cases in children in which the eye was to be enucleated and before making the enucleation. This apparatus was made for that purpose, and while the patient was still under the anesthetic. It was found that the temperature of the interior of the globe is a little higher than that of the conjunctiva and lower than that of the mouth —36.7—8—9 C. The window is just opened and if the members continue to feel interest I hope in future to make a more worthy and more creditable report.

The Topical Diagnostic Value of the Hemipic Pupillary Reaction and the Wilbrand Hemianoptic Prism Phenomenon with a New Method of Performing the Latter.

BY CLIFFORD B. WALKER, M. D., BOSTON, MASS.

Abst.—Historical account and previous work. Methods of performing the hemipic pupillary reaction test. Methods of performing the Wilbrand hemianoptic prism phenomena. Examination results on twelve cases in the neurologic surgical clinic of Dr. Harvey Cushing. Summarizing discussion: Hemipic pupillary reactions: (1) possible errors, (2) the combination Wernicke-Wilbrand test of Heine, (3) central sco-

toma cases. Willbrand hemianoptic prism phenomenon; (1) possible errors, (2) the factor of intelligence or power of observation, (3) pseudorefixation. Conclusions: Hemioptic pupillary reaction; (1) nothing noted in disagreement with the work of Hess, (2) the possibility of a hemioptic pupillary reaction within the central pupillomotoric area, (3) concentric movement psychic reflex, (4) clinical failure. Wilbrand hemianoptic prism phenomenon; (1) diagnostic value greatly depreciated if not entirely nullified by psychologic complex, (2) especially by the presence of pseudorefixation as demonstrated by the new method. Bibliography.

Dr. C. D. Wescott, Chicago: I think Dr. Walker deserves great praise for his careful investigations and for the construction and experimentation with this ingenious apparatus. A careful study of his paper, however, and his conclusions lead me to think that the tests as so far developed are not of sufficient practical use and accuracy as to be generally adopted. It seems to me the patient must be of exceptional intelligence to co-operate with sufficient accuracy to make them of sufficient value practically.

Dr. Walter B. Lancaster, Boston: The chairman of the section called our attention to the fact that we should have a number of valuable papers at this meeting, and I think that the three that stand out as representing original research work deserve mention—the paper of Dr. Schoenberg and the papers of Drs. Howe and Walker. The first two are in the nature of preliminary reports, but in Dr. Walker's paper we have a piece of finished research in which the problems are attacked and solved completely; all the errors are sought out and eliminated. We are proud to have that kind of work come from Boston, and hope there will be a good deal more of it.

Dr. Clifford B. Walker, Boston: These lights may be used in the Willbrand test. They can be moved in any position about the field and the motions of the eye noticed. In that way we come to the conclusion that the Wilbrand is much more unreliable than the Wernicke test. The Wernicke test can only be reliable in a few cases that this form of instrument could be used. The fields were taken with the same device as those which the author has described. Instantaneous changes of colors can be obtained without motion if the patient can be turned without moving his eyes. The factors of guess

are eliminated. The rimless disk is essential. They are of different size. Discrepancies between the different sides of the disk show the degree to which the atrophy has progressed.

DISCUSSION. Dr. W. H. Wilder, Chicago: There are two or three points that I think need reiteration, possibly, to some who dwell in localities where the work has not been done with such thoroughness as in Massachusetts. One of these points is the great importance of educating not only the members of the community, but also the members of the profession. This is after all, as Mr. Greene has represented, a campaign of education, and, surely, in some quarters, the medical profession is greatly in need of education along this line. There has been altogether too much indifference in the past shown to the recommendations and suggestions by specialists in the medical profession; and it has been only by the representations of certain members that the public have been awakened to the importance of it. Now we see that these efforts need further application and emphasis. We have with us tonight Dr. Howe through whose efforts the New York statute was placed on the books, that ophthalmia neonatorum should be reported to some medical man. I think possibly eleven states have a similar statute. We have one in Illinois. It needs men; it needs application; it needs more enforcement. Furthermore, it needs some changes so that the board to whom it is entrusted will have more police powers. We have a law in Illinois making it incumbent on midwives to report sore eyes in the newborn child to the nearest physician. The inefficacy of such a law all of us know is shown, for often the physician doesn't know much more about it than the midwife. The law itself lacks enforcement. I have reported cases from the state institutions and have found that the state board of health did not have any police powers. So that we see there must be some definite power granted to some definite body to enforce the law.

I think this excellent presentation illustrates the great importance of having some individual or individuals constituted as a board or commission to carry on this work. Such a commission must be legalized and it must have certain plenary powers which are not granted ordinarily to associations which are outside the government, and any efforts made in establishing a movement of this kind, it seems to me, must have in view such a commission as Massachusetts has, to accom-

plish anything. In our state we have been working on this subject for some time to bring about, if possible, the establishment of an association for the conservation of sight and the prevention of blindness. We are working along the line of securing a commission for the blind. Such a recommendation was made to the state legislature a few years ago; but of course as legislatures do, other questions with lobbies took up more time and the medical laws were pigeon-holed. It seems to me we must have a commission like that of Massachusetts, whose duty it will be to see that births are promptly registered and to make a census of the blind. This would include not only obstetrical blindness, but industrial blindness.

Dr. Casey A. Wood, Chicago: The council on health and public instruction of the American Medical Association has taken up this important matter. The council has done the very thing which Mr. Greene refers to, and an endeavor will now be made to bring into use the machinery of the American Medical Association as a whole in correlation with the state societies. When we have the committee, we can make use of the great experience of such men as Mr. Greene and his commission in Massachusetts, and apply the experience there to other states and I think something will be accomplished. It will be backed by a certain amount of money if the A. M. A. can be shown that actual work is being done. It will also help to relieve the country of that disgrace, the lack of vital statistics. To think that any nation which is considered above the average should go along without any vital statistics is almost unbelievable, and I think we are especially indebted to Mr. Greene for giving us this masterly presentation of the subject.

Dr. Thomas A. Woodruff, Chicago: I think if Mr. Greene will look up the law passed by Congress he will find that any employee injured in any factory has to be taken care of by that factory. The factory cannot settle with him. He may settle with the factory for \$200 today, but the factory will have to take care of him the rest of his life if he is disabled and if he knows enough to obtain his rights. In regard to the education of the profession and the people, I think it is much more important that the common people, before being educated in this, receive education along the line of what is necessary to prevent blindness; that will very soon educate the general practitioner to look after them.

In Illinois we recently formed an association for the prevention of blindness. We have in it not only the physicians, but have asked the laity to join and we now have a large association, preliminary in character, formed. In the way of educating the public, we have got the Association of Commerce of Chicago interested, and next fall we are going to have one evening devoted to the prevention of blindness. We have also enlisted the interest of the Chicago Tribune which will next fall devote space to the consideration of this matter. We also have the Daily News which has a course of lectures in the public school buildings of the city devoted to subjects of various sorts. Some of these lectures will be devoted to the conservation of vision and the prevention of blindness. So that we are trying to make it a live subject.

Dr. Lucien Howe, Buffalo: In regard to cases of insanity, one of the most recent investigations has shown that a little over 50 per cent have been due to the two venereal diseases. It strikes me as though we should join in the prevention of syphilis and gonorrhea and stop that stream at its source instead of trying to dam it back after the stream has gained headway. We should not mince matters at all in speaking to the public and should have them understand where the cause really lies.

Mr. Henry Copley Greene, Boston: I am very happy to hear what is going on in Illinois; and also I wish to disclaim any intention of setting off Massachusetts as a model, and I particularly desire physicians organized in other states not to follow our law, which is defective. The Ohio law is much better than ours. It provides for preventive work definitely, whereas, in our state, it is by sufferance.

ELECTION OF OFFICERS, THURSDAY, JUNE 19—9 A. M.

Ocular Vertigo.

BY ALLEN GREENWOOD, BOSTON, MASS.

Abst.—A good deal of vertigo of moderate severity is undoubtedly caused by the eyes. Experience will show that cylindrical glasses placed at oblique axes, or patients with astigmatism at oblique axes, are those most prone to ocular vertigo. Labyrinthine disturbances by means of rotation and thematic tests will produce rotary nystagmus, and it is reasonable to suppose that disturbance of the eyes which calls for unusual and unnatural actions of the ocular muscles will in turn disturb

the labyrinths and produce vertigo. Whether all of the vertigo produced by eye-strain is a reflex disturbance of the eighth nerves, or whether possibly dizziness may be produced by disturbances of the higher centers without intervention of the labyrinths, is not positively known.

DISCUSSION.—Dr. Albert E. Bulson, Jr., Fort Wayne, Ind.: In a study of the subject of vertigo it should be remembered that the labyrinth is not the only source of impulses which help to maintain our equilibrium, as evidenced by the fact that destruction of the labyrinths produces only temporary loss of balance. Braun and Friesner, in a recent work, say that the other sources of impulses for the preservation of our equilibrium perform the function of the labyrinth vicariously, or, what is more probable, the centers in which all these impulses are gathered accommodate themselves to the loss of the normal influence of the labyrinth, and a compensation results. Just how the impulses from the labyrinths share with those from other sources in maintaining our balance is a difficult matter to determine, and in the present state of our knowledge is largely speculative. Without doubt, however, all of these centripetal impulses combine harmoniously and, partly reflexly, at all events automatically, to establish our balance without our realization of the processes involved. Every disharmony in these impulses which serve to maintain our equilibrium causes, if sufficiently pronounced, a marked disturbance in balance.

The labyrinth is probably always active, in the sense that it constantly sends to the centers impulses acquainting us with our position in space, and also with the changes in our position. Under ordinary circumstances there are constantly aroused with perceptions of our position and its changes, reflex stimuli, whose purpose it is to cause the eye muscles and the body muscles to accommodate themselves to the conditions that call forth these perceptions.

It is an established fact that the labyrinths are in relation with the central nuclei of the muscles of both eyes, and a powerful impulse aroused in one labyrinth, even after the complete destruction of the opposite labyrinth, is capable of causing both eyes to execute nystagmic movements in all planes, and directed either to the sound side or to the other.

All the centripetal impulses, whose purpose it is to maintain our equilibrium, are gathered together in the cerebellum,

so that the latter may be considered, in a sense, the center for the labyrinth. There probably is no single, definite center upon which all of the centripetal impulses exert their influences. The cerebellum receives centripetal impulses from the labyrinth, sensory impulses from the muscles and joints, and visual impulses from the eyes, and it sends out motor impulses to the muscles of the head, trunk and extremities, the purpose of which is to maintain the equilibrium of the body. In the cerebellar cortex the motor impulses meet the centripetal impulses from the labyrinth, the muscles, the joints and the eyes, and are there acted upon in such a way as to become effective in maintaining the equilibrium of the body.

Vertigo, in itself, is of little value in determining the nature of the underlying affection, for, as stated by Mills, irritation may be reflected to the apparatus of equilibration from almost any part of the body, near or far. It is plausible, therefore, to assume that ocular vertigo, which is reflex, may, as pointed out by Dr. Greenwood, be a reverse action in which the irritation produced by accommodation strain and muscular insufficiencies, may produce an abnormal stimulus upon a more or less non-resisting equilibratory apparatus in which the disharmony is manifest in either the labyrinth or cerebellum.

Posey states that any uncorrected error of refraction, or presbyopia, or heterophoria in an individual predisposed to nervous affections may be responsible for an ocular vertigo, and he quotes observers who state that vertigo occurs in about 12 per cent of all cases of asthenopia, including both accommodative and muscular, in which no disease of the visual apparatus can be shown. It is common also in those that have asthenopia from wearing inaccurately adapted lenses, either in the strength of the lens or in the adjustment of the axis of a cylinder. Posey refers to the joint papers of Thomson and Weir Mitchell who point out that vertigo may be a symptom of eye strain, a fact that is being verified in the routine work of probably all oculists.

The subject of ocular vertigo is worthy of discussion by this section, and particularly that phase of the subject which has been so well emphasized by Dr. Greenwood, i. e., the fact that the majority of the cases of pure ocular vertigo result from moderate errors of refraction, and usually occur in patients whose eyes show astigmatism with asymmetric oblique

axes. Whether, as the essayist says, these errors of refraction, with their necessary accommodative strain, produce vertigo from reflex irritation of the labyrinthine nerves, the reverse of those conditions of rotary nystagmus produced reflexly by labyrinthine disturbances, or are responsible for the vertigo through disturbance of the equilibrium centers in the cerebellum, is of little concern except from a theoretical standpoint. The practical point which Dr. Greenwood has so clearly brought out and emphasized by illustrative cases is that vertigo may be purely ocular, and due to accommodative effort which can be corrected by properly adjusted glasses. The ocular vertigo accompanying paralytic squint, resulting from diplopia and false orientation, very properly has been excluded from the discussion.

In my own experience, the cases of ocular vertigo, which are relatively frequent, have usually occurred in patients who belong to the type known as neurotic, or whose resisting power has been lowered by disease, overwork, dissipation or failure to observe the ordinary rules of hygienic living. The vertigo is usually associated with one or more other nervous symptoms, including headache, nausea, irritability, etc. The attacks are brought on by eye-use and it is my experience that they occur as frequently under accommodative effort for distance vision as they do for near vision. The attacks are frequently preceded by headaches, nervous irritability or a sense of weariness or oppression. Usually the amount of the error is small and almost invariably it is of the astigmatic type with axes off from the vertical or horizontal planes. The existence of slight heterophorias has seemingly had little influence in the production of the vertigo, inasmuch as the correction of refraction in the majority of cases has been sufficient to relieve the vertigo, though occasionally a prism, more often to correct a hyperphoria, has been required.

Ocular vertigo is invariably relieved by cyclopegia, or by closing the eyes for a time either while sitting or lying down and this forms a valuable diagnostic indication as to the kind of vertigo we are dealing with. It should be noticed that practically identical errors in some persons will produce no symptoms, whereas, in other persons they will produce the most distressing symptoms. The reason for this is easily explained in the lack of nerve balance possessed by a class of patients whom for want of a better term we call neurotics.

The fact that many of these patients have excellent vision and do not associate the vertigo with any eye effort and that some oculists are prone to discourage the correction of moderate errors of refraction, leads many sufferers to attribute their trouble, which oftentimes includes more or less incapacity, to digestive or other disturbances. An accurate determination of the refractive error in these cases, made under full cyclopegia, and the correction of the error by properly adjusted lenses, will be sufficient to give relief. In other words, the recognition of an uncorrected error of refraction, oftentimes seemingly of little consequence as the etiological factor in the production of some distressing forms of vertigo, is deserving of the emphasis placed upon the subject by Dr. Greenwood.

Dr. G. C. Savage, Nashville: I was the original thinker along this line and I have succeeded at last in making myself understood. Oblique astigmatism does produce vertigo. Lenses directed to the astigmatism relieves it. But when the patient begins to wear these lenses he continues to have trouble. In hyperopic astigmatism, when the patient puts on these lenses he has to go up hill. If the reverse, he has to go down hill. It is easier to go down hill than up hill, and the man who has to go down hill with the glasses soon get over it; but the man who has to go up hill—

Dr. E. L. Jones, Cumberland, Md.: The matter of vertigo from the eyes has been impressing me as one of the commonest symptoms. I have had a number of little children before they got to the stage of headaches complain of giddiness, and if anything comes up that directs attention to the eyes it is corrected. I have seen old people well in the 60's who had extreme giddiness, and good physicians had tried to relieve them. Apparently their eyes would be all right; they might have been wearing presbyopic lenses for a quarter of a century. I have been impressed that the slightest error in refraction may produce it. We often find a low grade of astigmatism that does not blur the vision in the slightest. The axes have been inclined and the wearing of glasses has brought marvelous relief. I recall the case of a stonecutter ten or twelve years ago who was not dissipated nor neurotic who had extreme dizziness. He could work only a day or two at a time. His eyes were refracted under complete cyclopegia. He had one diopter spherical of hyperopia. It was corrected, and

after he got used to the glasses he had no further vertigo. In one instance a man had been in bed about a week. He said he could not come to the office. When his eyes were tested he could sit up only about five minutes at a time. He had a small vertical astigmatism, and in three or four weeks or less was over the vertigo. I have seen many cases of men disabled from their vocations on account of vertigo without any ocular symptoms whatever, no distressing symptoms about the eyes and no particular reflexes at all, no headache or what are considered the ordinary symptoms of eye-strain. I keep fairly accurate records of the cases I do under cycloplegia. In 1912 I found 168 cases of manifest reflex ocular symptoms, of which 69 complained of vertigo. Of 40 men 15 had vertigo; of 96 women 15 had vertigo; of 15 boys, 7 had it; of 7 girls 5 had it. I take off my hat to astigmatism especially if it has a tilted angle.

Dr. Lewis H. Taylor, Wilkesbarre, Pa.: Dr. Bulson speaks of the fact that these patients are of the neurotic type. Perhaps the majority of them are neurotic because of the astigmatism. They are not neurotic to start with. I recall particularly one of the surprises of my early practice. A physician who was approaching a condition of melancholy came to me and said he was worried and was unable to go on with his work. He had to drive some distance, being located in a small town. He was on the verge of collapse. All that was done was to correct his astigmatism, which was of low degree. As I remember, this man had selected very low cylinders, but the axes were at 15 degrees in each eye. The correction restored the man to health and he is still hale and hearty, a man past 70, still in active practice. This occurred twenty years ago. In the case of another physician who was in much the same condition he said he could not go on with his practice, and vertigo was a prominent symptom. He too was in this nervous condition, ready for a break-down. The result of the correction was the same. These are only two cases of many that I can recall. It seems to me we should always proceed in cases of vertigo to correct the refraction error. Then, if we do not succeed in correcting the vertigo, we shall find other trouble, probably in the labyrinth.

Dr. C. D. Wescott, Chicago: These patients are not always neurotic. A mechanic not engaged in fine work was re-

ferred to me after passing a good examination by an internist and an aurist. I found less than a diopter of astigmatism, with oblique axes, and he was immediately relieved by the use of his correction. A few months afterward I was disappointed to see him return with the original symptoms and thought possibly I had misjudged his case. Full cycloplegia showed that during the interval there had been a slight change in the direction of his axes and it was corrected. He improved in general health in the interval, and told me for the first time that he had also suffered a good deal from headache which had been improved by his correction.

Dr. F. Park Lewis, Buffalo: I think we have all had experience with the various ocular vertigos, but I brought to the attention of the profession two or three years ago, before the Academy of Medicine in Cleveland, conditions associated with this vertigo and the relation of vertigo with or without astigmatism to aural conditions such as tinnitus, etc. I found a paper by Rollean in which he called attention to various conditions associated with eye-strain. After having presented my paper, Dr. Risley discussed it and alluded to the fact that a variety of conditions were associated with eye-strain. Dr. Theobald the next year presented a paper before this section in which he quoted my findings and added still others. Four, at least, of our colleagues took up the question of the relationship between the eyes and various aural conditions. Last night one of our friends told me that that fact having been called to his attention he had recently relieved a case of tinnitus by correcting the refraction. This condition is not widely enough known and I intend to collect the facts bearing on the direct relationship between the eye and the ear. Whether it is through Deiter's nucleus or through the long fasciculus connecting the eye and the ear there is direct connection between binocular vision and aural conditions, and I shall be very glad to have a note from you as to your experience along this line.

DISCUSSION. Dr. Walter B. Lancaster, Boston: We all knew that oblique astigmatism sometimes caused vertigo. It is a surprise to find 17 in a consecutive series of 19 attributed to that cause. It is well worth while to have further statistics to establish the relative importance of different etiological factors, for there are many, in causing ocular vertigo.

It is interesting to theorize as to the possible mode of operation by which oblique astigmatism may produce vertigo.

We maintain our sense of orientation is of equilibrium by afferent messages to the higher centers from many sources, such as the semicircular canals, the visual apparatus, the muscle sense, superficial and deep. These messages are intimately correlated by an adequate system of connecting paths and presided over by centers of which we may mention the important one in the cerebellum.

Like all important functions, this has in normal individuals a wide margin of safety. I mean by this that there can be disturbances in various parts of this mechanism without throwing it out of gear so far as to cause vertigo. I have had personal experience with an aural vertigo due to comparatively slight causes, which was sufficient to throw the mechanism out of gear at a time when my margin of safety had been greatly reduced by a prolonged case of appendicitis and other factors. Similar slight causes today do not cause vertigo, my margin of safety having been increased. Given a patient who has little margin of safety to spare and a disturbance anywhere in the mechanism of equilibrium may cause a vertigo even though an equal disturbance in this mechanism in a more normal subject would not cause vertigo but only a slightly disagreeable effect, often called a "funny feeling."

This is how I account for the fact that of the thousands who have oblique astigmatism only a few have vertigo of sufficient degree to seek medical advice. The patient must be susceptible. The nervous system in that particular regard must be sufficiently unstable to be deranged by so slight a cause. If indeed that is a slight cause which makes lines that we had reason to think were vertical appear slanting-oblique, and makes other objects occupy correspondingly abnormal and unnatural positions.

That oblique cylinders and oblique astigmatism cause vertical lines to appear slanting is well known. The common explanation of how these slanting lines are fused and not seen double is that the eyes are rotated to correspond to the slant by the process called torsion or declination. This is misleading.

I have here a stereoscopic toy very slightly modified from that of Perry which he published in 1895 to show that the

eyes do undergo torsion—just what I use it to disprove. By moving this handle up and down you can imitate the verticle lines which would be produced by oblique cylinders. The lines are fused not by torsion but by virtue of what I call the function of stereoscopic fusion for relief or depth. This makes the fused line appear to extend forward or backward from the surface of the paper out into space, giving the sense of depth, relief, third dimension of space. It is not a function of the retina, but of the visual centers of the brain, and is no doubt closely associated by connecting paths with the other centers concerned in the perception of our relation to objects in space—the function of orientation and equilibrium. Verhoeff has written on this subject, and proved conclusively that torsion cannot possibly take place in this class of cases.

Dr. George S. Derby, Boston: I should like to ask Dr. Greenwood whether he makes any distinction between vertigo and dizziness. I agree with Dr. Bulson that a great many of these cases are neurotic, and I feel a good deal of doubt as to whether such small degrees of refractive error would cause dizziness, as in Case 3 and Case 10. I take exception to Dr. Greenwood's statement in Case 10. He says: "The wearing of this slight correction of the astigmatism constantly has entirely stopped the vertigo." The lens was a plus .25 cyl. ax. 9 in both eyes. I think it is difficult to say that the wearing of that correction corrected the astigmatism and stopped the vertigo alone. I call attention to the fact that the prescribing of glasses is one of the most powerful suggestive methods of treatment.

Dr. Edward Jackson, Denver: A patient of 50 years, weighing 250 pounds, a man successful in his practice, well off, and a man who is not in the ordinary sense neurotic, came to me for persistent vertigo, for which he tried all sorts of things. He required .35 and .37 cylinders, which relieved him. In two or three months he thought he was well and left off the glasses. The vertigo returned. He put them on again and wore them between two and three years. Then he found that he got along pretty well without them for some months before the vertigo returned. I remeasured the eyes and found about the same amount of astigmatism. He put on glasses and again got relief. I think that very low degrees may cause a perceptible and very annoying vertigo.

Dr. Hiram Woods, Baltimore: I should like to call attention to errors in diagnosis which are common and which grow out of this very thing. I want to show a condition that Dr. Theobald called attention to which I believe in many cases is true. For distant vision we have orthophoric glasses which for the normal eye are two to four degrees exophoric. There has been a good deal of discussion as to whether that is true or not. It is a common condition which is consistent with a comfortable condition of the eyes. Now we get a class of cases in which there is in distant vision orthophoria and in the near an esophoria of one, two, three or four degrees. Now what does that mean? According to this as Theobald says, it is indicative of ciliary asthenopia, and is brought about by the fact that there is excessive innervation of the ciliary muscle, and in cases in which the adduction is low the patient cannot separate his convergence from his accommodation. Consequently the excessive ciliary innervation induces excessive internal rectus action, and with apparent esophoria if you put plus glasses on these people you will bring about this alarming condition. There are the two errors in diagnosis that I think are extremely common. One is that in these low grades of oblique astigmatism there is an apparent effort of the ciliary muscle to correct, and it is corrected as far as the vision is concerned, but the error is that when the oculist examines the case and gets this condition and measures the ordinary accommodative range he is apt to think he has a weak ciliary muscle and puts on convex glasses and the patient gets no better. Another error is that esophoria in the near is taken as the real thing and prisms base up are prescribed. In one case a lady had giddiness and asthenopia. She was wearing plus 1.37 for near work. She had giddiness and headache, symptoms of typical migraine. She really had plus 0.25 in one eye and 1.50 in the other. She had these apparent weak ciliary muscles. She got relief from her giddiness in three or four days.

Dr. Allen Greenwood, Boston: Answering Dr. Derby's question, that was the only case in which the axes were not somewhat tipped from the vertical, and yet that patient was sent to me after having been through the hands of the general family physician and an aurist for a dizziness which had been very distressing for two or three months. In a year and a half there has not been any dizzy attack. It may be mental im-

pression; it may be Christian science; but the dizziness has disappeared. In other cases equally slight, in which the axes were oblique, taking off the glasses has reproduced the dizziness. I do not believe in all cases it has been due to mental effect. In regard to the difference between vertigo and dizziness. Any patient who complains of inability on getting up suddenly to turn around quickly has what may be called vertigo or dizziness, whichever term you wish to employ. I too have seen a good many cases during the past year of slight vertigo along with other symptoms, particularly headache, and I have seen a good deal of ear sickness which is somewhat akin to this condition. All have come to me for the relief of dizziness. I have not found that these patients were wholly neurotic, though they were so to a certain extent. In regard to the house officer who was disturbed by dizziness, he was actually unconscious for a few minutes, and it recalls the case of the girl who was thought to be epileptic, who has had no attacks since wearing glasses. The physician I referred to was a man who weighed over 200 and was in splendid condition. He was ready to give up his practice for what he supposed was arterio-sclerosis. For the last two or three years he has been comfortable and free from dizziness and able to carry on a large practice.

Is the Percentage of Myopic Eyes Diminishing?

BY SAMUEL D. RISLEY, PHILADELPHIA, PA.

Abst.—The paper is a continuation of the statistics set forth in an article on school hygiene, showing the steadily diminishing percentage of myopia from 1874 to 1893, inclusive, as a consequence of the careful correction of the anomalies of refraction by ophthalmic surgeons. These figures are given to demonstrate the truth of the claim made in a report of the examination of the eyes of school children in Philadelphia, published in 1881. It was there shown that the increase in myopic eyes during school life was due to the congenital visual defects with which children entered on their school work rather than on faulty environment in the schools. The present study is undertaken to discover whether the steady diminution in the percentage of nearsight has continued since the studies completed in 1894.

DISCUSSION. Dr. F. Park Lewis, Buffalo: I do not believe the profession begins to realize the enormous service

done by Dr. Risley in the careful investigation of refractive cases twenty-five years ago under cycloplegia. Since this paper referred to me for discussion I have again gone over the literature thoroughly, and I find there are two classes of reports made. Two classes of people have been interested in the study of developmental defects of the eye—the ophthalmologist and those studying the development of headache. In all sorts of reports I have been able to find in eugenics and pedagogy there has been in most of them a failure to recognize the necessity of cycloplegic correction. In many of these reports taken as basic there are the widest variations in standards. A very large number of them are taken from school examinations. Dr. Tousey of St. Louis has made a very extensive study of school children in St. Louis as has Dr. Gulick and Dr. Ayers in New York, with the widest variation in their ultimate findings. In Edinburgh a very complete examination has been made in which there has been a failure to recognize hyperopia of 2 D, and astigmatism of 1 D has been ignored. In such examinations the results may, of course, be excluded as having no essential basis. The number of examinations in which there have been careful cycloplegic tests, such as Dr. Risley's, are few, and before we can use any material of this kind for statistical purposes it seems to me we must first clearly understand what we mean by myopia. In that relationship we must be able to differentiate between that form of eye which becomes pathologic and that form in which we have a lengthened eye-ball which may exist throughout life without any pathology developing therefrom. I believe one of the first things we should do is to differentiate by name between myopia which is simply an elongation of the eye-ball which is distinguished by hypermetropia, and should distinguish between

(To be concluded.)

EDITORIAL.

STATE NURSES FOR OPHTHALMIA NEONATORUM CASES.

Under the new (1913) State Health Law recently adopted in New York measures are to be undertaken which should be effective in lessening blindness resulting from birth infections.

In place of the 1,200 local health officers whose inter-

ests are largely centered in their private practice, the state, exclusive of New York city, is to be divided into twenty districts over each one of which will be placed a sanitary supervisor who will be expected to devote his whole time to the work of the state. The present commissioner, Dr. E. H. Porter, who has recently received the new degree of D. P. H. (Doctor of Public Health) from Cornell University, is planning in the immediate future to designate a certain number of sanitary nurses throughout the state who will be available to the physicians of the state for immediate service in every case of ophthalmia neonatorum occurring within that district. This method has been successfully tried in several cities, notably New York and Boston, but it has not as yet received state wide application.

In order to make it effective it will be necessary either that legislation be enacted or that powers already held by the public health department be exercised concerning the prompt reporting of existing cases, otherwise the nurses cannot be of much use in controlling this disease.

The experience of Massachusetts in enforcing regulations requiring the reporting of existing cases has so far proved most satisfactory.

In 1907 the investigations of the Massachusetts Commission for the Blind had brought to light a number of cases of children who had been allowed to go blind in the city of Boston and vicinity without having received proper treatment. Since 1902 a law had been on the statute books requiring the reporting of ophthalmia neonatorum but it had been a dead letter. In 1910 supplementary legislation was obtained giving adequate power to the department of public health to take the necessary steps to protect the eyes of infants and to meet the expense incurred thereby. The Massachusetts Board of Health with the co-operation of the Boston Board of Health took the matter actively in hand. Notices were sent to physicians warning them that the failure to report cases occurring in their practice would be followed by prosecution. An instance very soon occurred. A case was chosen which was not gonorrhoeal in origin and which did not result in blindness, and although both of these points were raised in the defence the court convicted the physician and the superior court sustained the decision on appeal. The month before the

conviction the number of returns under the law had been ten; the month after the number was twenty. The next month, there being no prosecutions, the number fell back to ten, but in December new prosecutions were carried through and the returns rose during the next four months to 15, 32, 97 and 116 respectively. The last number seems to represent a fairly thorough enforcement of the law and the number is being maintained. It also gives some indications of the probable number of infections in cities of like population. The enforcement of the reporting law, however, is but one part of the Boston Board of Health's preventive work. Every reported case of ophthalmia neonatorum that is not under the care of a responsible physician is immediately followed up by a competent nurse who sees to it that proper care is given to the child and that, if necessary, it is sent to the hospital.

When the 1,343 cases reported in the state of Massachusetts in 1911 is compared with the 60 cases reported in the entire state of New York, outside of New York city, during the past year the inadequacy of our present methods will become self-evident. The importance of the preventive work done in Massachusetts will be better understood and appreciated when read in connection with the conditions obtaining in the four preceding years, during which time the statistics and results of ophthalmia neonatorum had been observed. During these years of the 388 cases of ophthalmia neonatorum under observation 65 *had resulted in partial or total loss of sight to the babies*. During 1912 4 babies in the state of Massachusetts had become blind and four were left with but one useful eye. While this is a vast improvement this total of eight is still far too large. As the commission points out each one of these babies could probably have been saved by efficient and prompt sanitary control.

If babies are to be saved from blindness the necessity of a more aggressive and more definitely organized movement than that now generally carried on must be inaugurated. It will be interesting to watch the effect of Dr. Porter's efforts to control this disease in the greater state of New York.

F. PARK LEWIS.

NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Building, State and Madison Streets, Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

Dr. H. O. Reik of Baltimore is in Europe.

Dr. Eugene Van Sant of Philadelphia has gone abroad.

Dr. and Mrs. W. E. Lambert of New York are abroad.

Dr. and Mrs. Frank Todd of Minneapolis have sailed for Europe.

Dr. and Mrs. Charles Swan of Evanston, Illinois are in Europe.

Dr. E. W. Bartlett of Milwaukee is seriously ill at his home in that city.

Drs. Wm. M. Sweet and Wm. Zentmayer of Philadelphia have sailed for Europe.

The Missouri legislature has authorized the reporting of ophthalmia neonatorum.

Dr. J. E. Logan has resigned his position on the staff of the Kansas City (Mo.) Hospital.

Drs. T. S. Conover and J. W. Orr of Flint, Mich. are in Europe doing post-graduate work.

Dr. Edward Jack and Dr. J. G. Goodale of Boston, have sailed for Europe to spend the summer.

Dr. Mark D. Stevenson of Akron, Ohio, has just returned after spending nearly seven months abroad.

Dr. Frank Boynton, senior surgeon of the New York Ophthalmic Hospital died July 3rd, aged 53.

Dr. T. J. Dimitry has been appointed oculist for the Southern Pacific Railway at New Orleans.

It is reported that Dr. Joseph Beck and Dr. J. Bergeron of Chicago have resigned from Bennett Medical College.

Dr. J. A. Pratt of Aurora, Ill. has sailed for Europe where he will spend several months in post-graduate work.

Dr. David W. Wells of Boston has been appointed professor of ophthalmology in Boston University Medical School.

Drs. E. Reed Russell and R. G. Buckner have been elected ophthalmologists on the staff of the Meriwether (N. C.) Hospital.

Dr. Henry Dickson Bruns of New Orleans has been placed on the active staff of Tulane University as professor of diseases of the eye.

Dr. Ernest Motais, professor of ophthalmology at the Ecole de Medicine d' Angers died recently in Paris following an operation.

Dr. Ellet O. Sisson died at his home in Denver, July 4 from tuberculosis. Dr. Sisson was formerly on the staff of the Keokuk, (Ia.) Medical College.

A new Society has been formed in Ohio Medical Circles, it is known as the Ohio Medical Advertisers Association. All registered physicians are eligible.

Dr. G. C. Savage of Nashville, Tenn. is head of the department of Eye, Ear, Nose and Throat at the new Watauga Sanatorium for tuberculosis near Nashville.

Dr. J. M. Ray of Louisville, Ky., is in England, where he expects to remain two months. He will attend the International Congress to be held in London in August.

A bill recently presented in the French Chamber of Deputies provides for medical examination of chauffeurs, one of the chief requirements being normal vision.

Dr. John F. Rowland of Hot Springs and Dr. Robert Caldwell of Little Rock, Arkansas, sailed on the 7th of August for Europe to study for three or four months.

Dr. H. B. Jennings of Council Bluffs, Ia. will preside at the annual meeting of the Medical Society of the Missouri Valley to be held in Omaha, Neb., September 18.

The Washington County (Md.) Medical Society was entertained at dinner by their neighbors, the Frederick County (Md.) Society. Dr. Hiram Woods of Baltimore gave an address on "Preventable Blindness."

Dr. Monte Griffith of Washington, D. C. died recently from angina pectoris. Dr. Griffith was assistant professor of ophthalmology in Georgetown University, and ophthalmologist to the Children's Hospital, Washington.

Dr. Casey Wood has been appointed Professor of Ophthalmology and Head of the Department of Ophthalmology in the newly constituted College of Medicine of the University of Illinois, the reorganized and former College of Physicians and Surgeons, Chicago.

Dr. D. W. Greene of Dayton, O., died August 16 at his home in that city. Dr. Greene was ophthalmic surgeon to the Soldiers' Home, in Dayton and was perhaps best known through his studies and advocacy of the Smith-Indian intracapsular cataract extraction.

Columbia University has just graduated twenty men from the new course in optometry which, at the time of its founding several years ago, was so strenuously opposed by the medical profession. These students will be required to pass a state examination before being licensed to practice optometry. One of the reforms which the optometrists hope to effect is that of preventing cheap stores from selling glasses to those who pick what seems best suited to their taste regardless as to whether the glasses are really suited to the needs of the case.—*Jour. A. M. A.*

The optometry bill which passed both houses of the Wisconsin legislature was vetoed by Governor McGovern. A hear-

ing was given by the governor to both sides and he felt that regulation was desirable but that the bill in its present shape was improper and unfair to oculists and reputable optometrists and did not safeguard the public. It was proposed by the advocates of the bill to allow all persons now practicing optometry in Wisconsin to take out a license without examination, when these same advocates have agreed that the bill should be passed because Wisconsin is filling up with undesirable opticians from the states which now have license laws. This would obviously result in letting these undesirables in without any test of qualifications. Another defect was the lack of specified subjects in which applicants are to be examined. The language was too vague and would permit unscrupulous opticians to trespass upon the proper field of the oculist to the detriment of both the oculist and the public.

The Northwestern Oph-Lar-Rhin-Otic Society, made up of eye, ear, nose and throat specialists from the adjoining sections of Minnesota, Iowa, Nebraska and South Dakota, was organized on July 22 at Sioux Falls. The following officers were elected: President, J. G. Parsons, Sioux Falls; vice-president, L. N. Grosvenor, Huron; secretary, F. E. Franchere, Sioux City; treasurer, S. A. Keller, Sioux Falls; censors: L. G. Hill, (Watertown), H. J. G. Koobs, (Scotland), H. H. Frudenberg, (Madison). The following program was given: "Blood Clot Mastoid Operation," J. G. Parsons, Sioux Falls; "Sluder Operation," F. I. Putman, Sioux Falls; "Bronchoscopy and esophagoscopy," Fred. Roost, Sioux City.

BOOK NOTICES.

Regarding the Involution Forms of the *Gonococcus* of Neisser and their Role as Intraepithelial Cell Parasites. By Prof. Dr. Hans Herzog, Berlin. (A reprint from *Virchow's Archives*.) Illustrated with two plates and seven figures.

Julius Hirschberg's Selected Treatises, (1868 to 1912).

Presented by his students Oscar Fehr and Wilhelm Muhsam in honor of his seventieth birthday. Illustrated and containing Prof. Hirschberg's portrait. Published by Von Veit & Company, Leipzig, 1913. Price \$7.20.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.) G. W. Mahoney (Poli.)	*Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)	G. W. Mahoney (Poli.) Rich'd S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.) Brown Tusey, N.W.U Every day, 10-12 A.M.	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wipperr (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wipperr (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipperr (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Illa. Med.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) Wm. H. Wilder (Inf.) F. A. Phillips (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) E. J. Gardner (E. E. N. T.) Paul Guilford (St. Luke's) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) Wm. E. Gamble (Inf.) E. J. Gardner (E. E. N. T.) Paul Guilford (St. Luke's) *Cassey Wood (St. Luke's) T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Illa. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Illa. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Illa. Med.)	*J. E. Harper (P. & S.) *W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street. E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets. Clinics all day.	County: Cook County Hospital, W. Harrison and Honore Streets. Illa. Med.: Illinois Medical College, 182 Washington Blvd. Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	Poli.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue. P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street. N. W. U.: Northwestern University, 2431 Dearborn Street.	Rush: Rush Medical College, W. Harrison and Wood Streets. St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
--	--	--	--

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXII

CHICAGO, OCTOBER, 1913

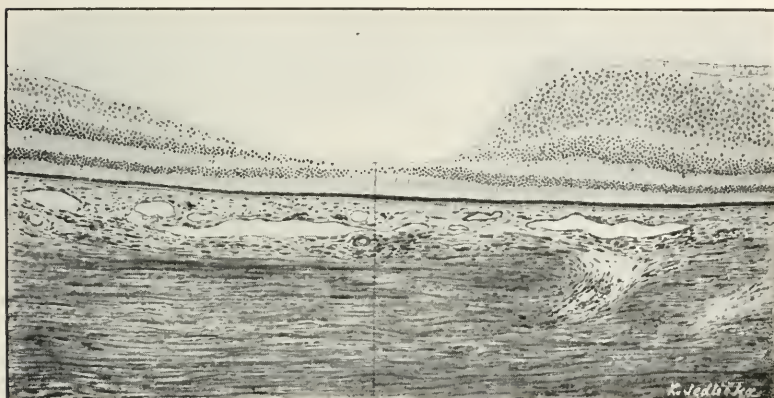
No. 10, New Series

ORIGINAL ARTICLES

A HITHERTO UNDESCRIBED ANOMALY OF THE MACULAR RETINA.

BY HARRY S. GRADLE, M. D., CHICAGO, ILL.

There have recently come to me for examination several nearly identical anomalies of the fundus of which I can find no description in the literature. Although positively not patho-



logical, still I believe this condition to be of such interest as to warrant a careful description.

CASE I. M. K. Age 10 years. Complains of headaches and lowered vision.

Status Praesens. Healthy, well-nourished boy, with fair degree of intelligence. Anterior aspects of both eyes show no pathological changes. Pupillary reactions to light and accommodation normal. Pupils dilate well under homatropine. In the macular region of the fundus can be seen the following condition:—Right—The fovea is comprised of a slightly oval area about the size of the papilla, of a dark red color, speckled with very fine black points. In the center is an exceptionally well demarcated, discoid, yellowish-white, foveal reflex. The dark red fovea is surrounded by a grayish red zone, sharply

demarcated on the foveal side and gradually fading into the surrounding normal fundus toward the periphery. The width of this zone is about one-fourth of the narrowest diameter of the fovea. The foveal edge is clean cut, and seems to be as perpendicular as are the edges of a glaucomatous cupped disc. The papillo-macular artery, in passing through the light zone, is hazy, but reappears sharp at the edge of the fovea, bends backwards and becomes lost in the depths of the macula. The floor of the fovea is uniform, and seems to be about one-third of a millimeter deeper than the surrounding lighter zone. It can be easily seen that this zone is composed partly of vague restless light reflexes, partly of a delicate grayish opacity situated in the innermost layers of the retina. This view is corroborated by the fact that the branches of the foveal artery bend sharply in passing from the gray zone to the dark red fovea, and that there is a distinct parallax of the gray zone contrasted to the foveal background. Although the light reflexes are more intense with a narrow pupil, they are still visible with a mydriatic. The rest of the fundus is normal, except for one small, black pigmented area in the extreme periphery, as though there might have been some destruction of chorioidal tissue or retinal pigment epithelium at some period.

Left—Fundus same as right except that the transition from the dark red fovea to the gray surrounding zone is not so sharp in the lower portion, the two zones seeming gradually to merge into each other.

Vision (either eye)—20/30 No. 1.50 sph. = 20/20.

Vision corrected with pinhole disc = 20/20.

Visual fields and color perception normal. Tension normal.

CASE II. R. M. Age 17 years. Complains of headaches which have become worse lately.

Status Praesens. Healthy, well-developed intelligent girl of higher social stratum. External aspect of both eyes normal, except for a slight conjunctivitis. Pupillary reaction to light and accommodation, normal. Pupils dilate well under homatropine. The macula of the left eye presents a condition almost identical with that found in Case 1, except that the transition from the dark red fovea to the surrounding gray zone is less sharply demarcated and the clivus is more sloping. The difference between the depth of the macula and the height of

the surrounding retina is less than one-third of a millimeter. In the periphery of the fundus down and out is one quiescent pigmented area of merely pinpoint size. In a crescentic form around the disc is a small amount of peripapillar pigment. Fundus otherwise normal as is the right fundus.

R. V. = 40/45 No. 1.00 sph. = 40/45.

L. V. = 40/45 No. 0.75 sph. = 40/45. Pinhole V. = 40/45.

Visual fields and color perception, normal. Tension normal.

Case III. W. S. Age 17 years. Complains of headaches for several months upon reading.

Status Praesens. External aspects of both eyes normal except for a moderate conjunctivitis.

Right—Upon lighting the macula there occurs but slight pupillary contraction. The macular region presents a change similar to that described in Case 1 with the following exceptions: The central foveal reflex is deadwhite instead of yellowish red and is rather larger than normal. The fovea proper is slightly smaller than in the preceding cases, and is nearly round. The zone surrounding the fovea presents the same peculiarities as in Case 1, but is not elevated so much above the macular floor. No vessels pass from one zone to the other. Peripapillar pigment is present in this as well as in the other eye, whereas the rest of the fundus is normal.

R. V. = 40/40. No. 1.00 sph. = 40/40. Pinhole V. = idem.

L. V. = 40/40. No. 1.00 sph. = 40/40.

Color perception and visual fields, normal. Tension, normal.

In young adults, there is a light reflex from the exact center of the fovea, usually yellowish-white and sharply defined. There is also a surrounding light reflex which tends to limit the borders of the normal fovea. In the condition here described, the central reflex has a whiter tinge than the normal and is more nearly discoid in outline. The borders of these maculae are more sharply demarcated than the normal and this can be ascribed to three features. The limiting light reflexes are intenser and stand out sharper. The clear demarcation of the fovea is further intensified by the grayish zone immediately surrounding and sharply outlining it. This opacity evidently lies in the innermost layers of the retina, as will be clearly

demonstrated later. The third condition is an abnormal thickness of the retina immediately around the fovea whose base lies at the normal depth as evidenced by the normal black pigment epithelium.

The abnormality of the light reflexes cannot be explained easily. As the refracting media of the eye are normal, we must look for their peculiarities in the macula proper. The whiter aspect of the central reflex is probably a contrast color, due, to the unusually deep red of the fovea proper, which color is in turn a sequence of the unusually abrupt limiting walls of the fovea. The restless gray reflexes partly comprising the grayish zone around the fovea must be dependent upon the abnormal thickness and semi-opacity of the superficial retinal layers. We know that these limiting reflexes are dependent, partly on the size of the pupil and partly on the mirror effect of the transparent retina with its posterior coating of black pigment. These reflexes, hence, lie well anterior to the retina and their exact location in the vitreous chamber can only be guessed at. However, a disturbance of the macular retina is followed by a disturbance, or disappearance, of these reflexes as evidenced in a severe central chorioiditis.

The grayish zone immediately around the fovea is due partly to an increase in thickness of the innermost retinal layers, partly to an opacity of these same layers. That the relative height of the internal limiting membrane of the retina above the floor of the macula is greater in these eyes than in the normal can be shown by direct ophthalmoscopic measurement. That the increase in thickness lies in the innermost layers of the retina can be deduced from the appearances of the temporal branches of the foveal artery. Before entering the gray zone, the artery has a normal appearance. Immediately after its entrance, the outlines of the vessel lose their sharpness of contour and the color becomes somewhat muddy. These changes increase as the vessel passes through this zone and suddenly upon its emergence at the foveal border, the vessel stands forth sharply in all its clearness and beauty of color. Then it dips as though bending over the edge of a cup, and becomes lost in the floor of the macula. We know that the retinal vessels lie in the depth of the nerve-fibre layer and in the superficial and middle areas of the ganglion-cell layer. Hence this cloudiness is certainly due to an abnormality of the layers lying internal to the vessels, i. e., the nerve fibre

and ganglion-cell layers. The accompanying diagrammatic sketch will make my meaning clear. The left half represents the normal macula and is an exact copy of the macula described and pictured by Elschnig (II). The right half represents the histological condition that I believe to be present in the cases herein described. Perfect fixation of the macular retina and subsequent histological examination is so rare that the normal macula and its relationship is still a problem incompletely elucidated. However some histological examinations have shown increased thickness of various retinal layers. Again Elschnig describes a naltinotic fundus with complete lack of development of the macula. Hence I feel justified in assuming a circumscribed local thickness of various local layers.

In the normal macula, the ascent from the floor of the fovea to the normal retinal level, or as Salzmann terms it, the *clivus*, is a very gradual one and cannot be measured ophthalmoscopically. In this condition however, the *clivus* is probably very abrupt, in fact so much so that the walls are nearly perpendicular to the normal macular floor. This is shown by the suddenness with which the vessels plunge into the depths of the fovea, closely resembling the sharp bend made by vessels descending into a glaucomatous cupped disc. This would lead to the supposition that the macula is depressed. But such is not the case. For the retinal pigment epithelium is clearly visible in an otherwise normal macular floor. The macular rods and cones are evidently well-developed, for central vision through a pinhole disc is perfect. Moreover, there are none of the appearances of a coloboma, for such would be the condition were the macula depressed.

Thus we have apparently a condition of "Hole in the Macula." In reality, however, the macular floor is normal, though surrounded and sharply demarcated by unusually abrupt walls of the retina whose innermost layers have undergone a considerable increase in thickness and have lost some of their transparency. This does not correspond with the "Hole in the Macula" first described by Haab and later mentioned in the various textbooks.

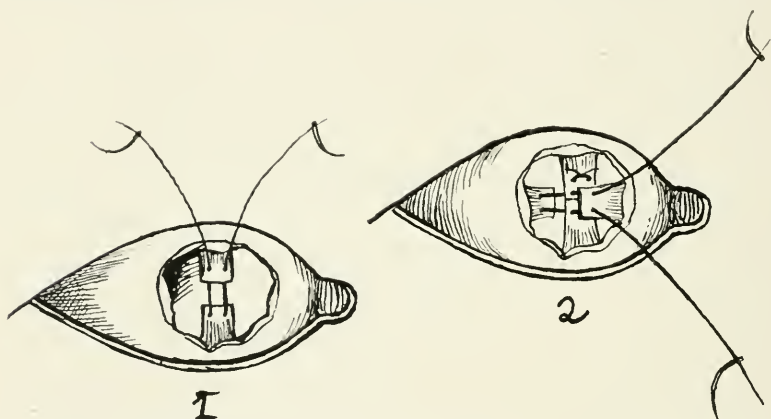
I wish to embrace this opportunity for expressing my thanks to Professor Elschnig, who, upon his recent visit to America, examined Casel, and since then has been kind enough to lend his valuable assistance in translating the appearances

of the fundus. (1) Posey & Spiller Textbook. (2) Elschnig. Graefe's Archiv. Vol. 84-1913. (3) Salzmann. The Human Eyeball. (4) Habb-Fuchs-Weeks-DeSchweinitz Textbooks.

THE IMPLANTATION OF FAT IN TENON'S CAPSULE.

BY CHARLES NELSON SPRATT, B. S. M. D., MINNEAPOLIS, MINN.

Some eight years ago, the writer¹ reported a series of cases, in which paraffin balls had been placed in Tenon's capsule. This was supplemented in 1908 by an additional series.² Ad-



verse reports have since been published by others in which attention was called to the fact that, in certain cases, irritation had been caused by the prothesis; and that paraffin, like glass balls, had a tendency to change its position in the orbit.

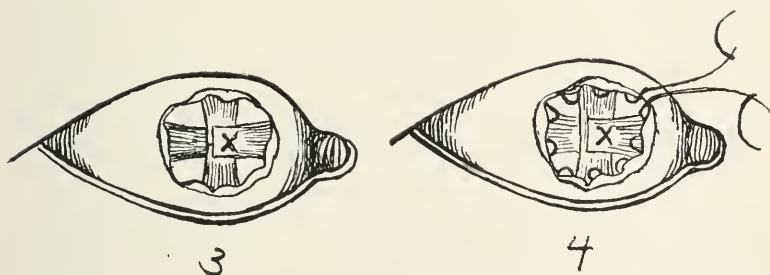
In a series of sixty-six cases, personally operated on in private practice, there have been but three cases in which the ball was extruded. Quite a number of the cases examined years after the operation, showed the paraffin to have changed position. This is due to the contraction of the tissues and to the slipping of the paraffin between the muscles. No case of irritation has ever occurred in the writer's practice.

In 1901, Barraquer,³ added to the long list of substances used for prothesis after enucleation, fat from the gluteal region. Several other Spanish writers have reported favorable results with this operation.

Bartels⁴ in 1908, reported his experiences with fat implantation in dogs, and human beings. In the same year Valez⁵ reported 10 cases. Lauber,⁶ in 1910, reported 37 cases

of fat implantation into Tenon's capsule with 3 failures. Tschirkowsky⁷ in 1912, reported 37 cases operated on in the Freiburg clinic. Waldstein⁸ in 1911, reported 19 successful cases in 20 operations. The only reference to the operation in English, excepting those in the reviews, are three cases reported by Weidler.⁹

In an experience of three operations, the writer is much impressed with its advantages, over the other substance suggested, and in fact it seems to be the ideal method of making a mobile stump for the artificial eye. This operation deserves a wider use. By the use of fat, a sterile, autogenous graft is secured which, when inserted in Tenon's capsule, has less tendency to change its position, than any of the foreign substances suggested. It offers little or no chance for extrusion, unless an infection takes place, or faulty methods of suturing are used.

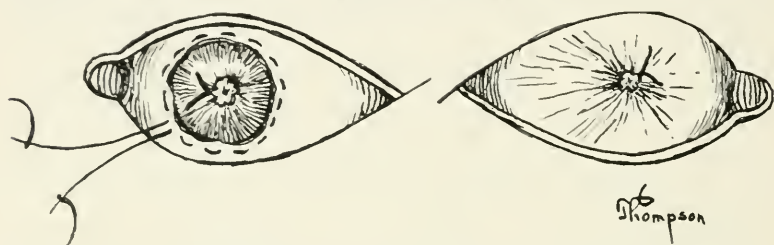


The method used by the writer is as follows: Warm ether vapor is given through a tube in the nose, or by intra-trachial method. The skin about the eye is cleaned with alcohol, ether and oxycyanide of mercury 1:1,000, and the conjunctival sac is flushed with a solution of 1:3,000 of the latter. The face is covered by a layer of wet gauze. The conjunctiva is divided close to the limbus and dissected backwards, beyond the insertion of the recti muscles. These are picked up on a strabismus hook and separated from the surrounding tissue. Before dividing the tendons, each is caught by a small delicate hemostat known as the Halsted "mosquite." After dividing the tendons, at their insertions, the eye is enucleated in the usual manner and the cavity is packed with a moist sponge, to stop the hemorrhage.

After cleaning the skin of the abdomen, a horizontal incision 4-6 cm. long is made below the umbilicus and a piece of subcutaneous fat is removed. Even in thin individuals

there is a sufficient layer of fat for this purpose. A larger piece of fat can be placed in Tenon's capsule than when paraffin or a glass ball is inserted, as the fat is more elastic and is not forced out between the muscles, as is a smooth hard mass.

On removing the packing from Tenon's capsule, it will generally be found that the hemorrhage has ceased. The fat is inserted and the superior rectus is sutured to the inferior rectus by a mattress suture of double 00 chromacized catgut. (Fig. 1.) The loop of the catgut is placed beneath the inferior.



and the knot, on the outer surface of the superior rectus. This makes the strongest possible suture. The two lateral recti are sutured in a similar manner, each needle being passed through the previously sutured recti (Fig. 2). By this method a fixed point for all four muscles is formed.

When the sutures are being tied, an assistant approximates the ends of the muscles by means of the hemostats, thus preventing traction and cutting of the sutures. Tenon's capsule is closed over the muscles and fat, by means of a deeply placed catgut suture (Fig. 4). This relieves the tension of the muscles, covers the fat with an extra layer of tissue and prevents the fat from protruding between the muscles.

The conjunctiva is closed by another purse string suture (Fig. 6). A firm pressure bandage with a thick layer of soft gauze is applied. This is rather uncomfortable, but its use is advised as, with it, the swelling is less and convalescence is shortened. The incision in the skin of the abdomen is closed with a subcutaneous suture.

Less swelling has followed the use of fat, than formerly occurred when paraffin was used. An artificial eye was inserted, in my three cases, at the end of 18-24 days.

The motion of the stump has been excellent. The average being 28° upwards, 15° downwards, 22° nasalward, 20° temporalward. According to Reber,¹⁰ the average rotation in 100 normal eyes was upward 36° , downward 52° , nasalward

50°, temporalward 48°. After the swelling, due to the trauma of the operation, has disappeared, there is an apparent shrinking of the contents of the orbit. Unquestionably there is some atrophy of the fat, but it has not been found to be as great as that reported by Weidler, who states that, in his cases, there was apparent shrinking to $1/2$ — $1/3$ of the original size.

Conclusions.

1. The aim of the surgeon should be to obtain a good, movable stump after an enucleation.

2. Fat being an autogenous graft, is least liable to be extruded, as it becomes a living part of the orbit.

3. Fat can be obtained in a sterile condition and forms a soft elastic mass that is non-irritating and will not slip its position as do smooth hard foreign bodies.

900 Nicollet Ave.

1. Spratt: Archives of Ophthal. 1905: Vol. XXXIV, No. 2. P. 123.
2. Spratt: Ophthalmology, Jan., 1908.
3. Barraquer: Archiv. d'Ophthal. Hisp. Amer., 1901, t. I. P. 82.
4. Bartels: Bericht. der Ophthalm. Gesell. Heidelberg, 1908. P. 333.
5. Valez: Cited by Lauber.
6. Lauber: Bericht der Ophthal. Gesell. Wien, March 9, 1910.
7. Tschirkowsky: Klin. Monatsblat. f. Augenheil, May, 1912.
8. Waldstein: Klin. Monatsblat. f. Augenheil, May, 1911. P. 749.
9. Weidler: N. Y. Med. Journal, Nov. 2, 1912. P. 899.
10. Reber: Journal Amer. Med. Assoc., Sept. 21, 1912.

THE CARE OF SCHOOL CHILDREN AT MOORFIELDS.

BY SAMUEL HORTON BROWN, M. D., PHILADELPHIA, PENNA.

In the larger cities of the United States, those in charge of the several eye clinics frequently find themselves overwhelmed during the winter by the thousands of refraction cases among school children, referred to them by the school inspectors. It is difficult to determine just what should be done with these cases. In some of the cities, notably Philadelphia, a city ophthalmologist is appointed and a limited number of the children are sent to him directly. These, for the most part, have been placed under atropine at school by the school nurse, and frequently he prescribes from his ophthalmoscopic findings alone and after a single examination.

In nearly all cases the children have to be refracted again within a month or two (for obvious reasons) and, this second time, they are referred to the several well-equipped hospitals, to which, of course, they should have been sent in the first place. Unfortunately, they all appear well-nigh simultaneously, and consume the most of the time of the junior

assistants, who feel that they attend clinics for something else than the tiresome, difficult, patience-trying errors of refraction in school children.

During a recent visit to the Royal London Ophthalmic Hospital (Moorfields), London, I was agreeably surprised to find that this problem had been successfully solved by that institution, and I take great pleasure in transcribing the data furnished me by the secretary, Mr. Robert J. Bland, for the benefit of any who may be inspired to introduce the same idea into their community.

The Royal London Ophthalmic Hospital is known to students of ophthalmology all over the world and its practice is usually considered to be a guiding star. Not only its historical associations, but its present large service entitle it to this consideration. In this institution are accommodations for 138 in-patients at one time, or about 2,236 yearly, and the out-patient department sees about 54,572 new cases each year, with a total attendance, new and old, of 125,788. Now from such a tremendous service as this, it is reasonable to suppose that the addition of the great mass of London school children would make trouble and confusion for the workers in the hospital. This institution being essentially a graduate school, the assistants and students are averse to this dry, monotonous, over-familiar work, preferring to see unusual inflammatory and surgical cases. Yet it is fitting that the children should be examined and prescribed for in a well-equipped hospital with skilled consultants at hand, rather than in a poorly equipped department of some municipal bureau.

Consequently, in the case of Moorfields, necessity prompted a change in the existing order of things. The London County Council, therefore, after much persuasion made an agreement with the hospital for the special and prompt treatment of the London County Council elementary school children who require glasses. The hospital equipped a model department, separate from the other clinics, where such children are treated apart from the other patients. This department has attracted considerable attention, as it is practically a school eye-clinic. Five physicians are engaged in this department each week, and it also engages part of the time of the nursing, domestic, clerical, dispensing, and optical staff. For neatness and despatch this is the finest clinic of its kind in the world. The

clerical work is done by a clerk, who employs a clean practicable card-index system. Noise and confusion are absent. The rooms of the clinic are clean and very attractive.

The agreement between the hospital and the council is that the hospital will care for not more than 5,000 school children in the special department upon the payment by the London County Council of the sum of £1,000 (\$4,800.00) annually, half of which the hospital retains for its expenses, dividing the other half equally among the five physicians. This yields to each physician £100 (\$480.00) annually. The cost of examining and prescribing for each child is approximately four shillings (96 cents), of which the doctor in attendance receives two shillings (46 cents). Even in our land of high prices this would be quite a considerable item.

It is so arranged that each doctor sees not more than twelve new cases daily and such old cases as have been returned to his service. At the maximum, an assistant cannot consider his day badly spent when the hospital work has placed 24 shillings (\$5.76) to his credit.

Not all school children coming to the hospital are exclusively refraction cases, but frequently present other conditions. These are referred back to the hospital proper. In order, however, to prevent confusion, duplication of records, etc., each day sees one of the chief surgeons of the hospital acting as medical officer for that day, and all the cases, other than refraction cases occurring in this special department, automatically belong to the clinic of the medical officer of the day and he treats them as such henceforth.

In 1912, there were 4,501 new cases of school children with a total attendance of 11,860. There were 138 transferred to the regular out-patient department. Spectacles were prescribed for 3,878. The number of grants for spectacles was 1,156.

Regarding spectacles, the hospital neither manufactures nor sells spectacles but arranges for the optician to attend daily at the hospital. The optician is authorized to charge prices ranging from 1/9 (42 cents) to 3/6 (84 cents), and, in the case of cataract patients, 5/6 (\$1.32). Those who cannot pay these prices can, on application to the inquiry officer be furnished with a paper stating the cost: this paper is signed by the inquiry officer, and is a certified statement in case the

patient applies to some agency (there are about 800 such agencies available) towards the cost of the spectacles.

Regarding these spectacles, it is questionable whether in many cases the patient would not be better off without them. The blanks are made in America, I am told, by the American Optical Company, and sold cheaper than they can be purchased in America. This is only heresay and I am not in a position to verify the statement, but certain it is that the assembled spectacles are sold much cheaper than in America.

Luxuries (for so they would regard them) like gold-filled, ten or fourteen carat frames, are not tolerated by the hospital authorities: in fact they are considered as a manifestation of wealth beyond the dreams of avarice. Consequently the frames are made of some base metal, I would say cast iron, from appearances: Rimmed glasses are the proper style and the saddle bridge is fitted without regard to centering or anything else, that is, as we understand such things. The diameter of the lenses bears no relation to the size of the eye, or to the interpupillary distance, but the sizes are selected solely by inspiration.

In our benighted way we regard the most durable, as well as the best appearing frame as being an evidence of the wisest economy, and perfect fitting as being essential. One of the several grades of gold frames is not an extravagance, for such a frame wears longer and better and does not render the patient conspicuous—a point of considerable value to the patient when he is looking for a job.

The inquiry officer corresponds to our Social Service. Unfortunately we, in America, have as yet only been brought to regard our Social Service as a means for determining how poor the patient is. In several papers during the past few years, I have tried to show that this same institution could be employed for determining how rich the patient is, thus eliminating the dispensary dead beat. No one believes that the elimination can be thus brought about in America, consequently I was very much gratified to learn that the plan in question had been in operation through the Moorfields inquiry officer for several years with great success and with a very decided increase in the hospital's revenue. The sum of £1,044, 7 shilling, 6 pence (\$5,013.00) received from the donation boxes reflects the activity of the Inquiry Department.

The inquiry officer was appointed in 1893 "for the special purpose of preventing, as far as possible, any abuse of the charity by persons who are able to pay a surgeon." Careful precautions are therefore taken to prevent the admission of such persons, and each patient on his arrival is first interviewed by the assistant secretary; this preliminary investigation not only facilitating the work of the Inquiry Officer, but constituting an extra precaution against possible abuse. On the way out, the patient must of necessity pass through a room in the center of which stands a table on which lies a contribution box. An attendant is stationed close by. The dropping of pennies in the box by each preceding patient suggests the proper course to the next one. From a personal observation of this performance, it would seem that none were too poor to drop at least a penny into the donation box. Moorfields is a wonderful place in all of its departments, but the arrangements for handling school-children, and the methods of the Inquiry Officer commend themselves especially to our serious consideration.

BURN OF EYEBALL DUE TO CAUSTIC CONTENTS OF GOLF-BALL.

L. W. CRIGLER, M. D., NEW YORK.

William J., aged 10, on Aug. 2, 1912, while dissecting a golf-ball, ruptured the small rubber bag in the center of the ball, and the contents spurted into his right eye. This caused immediate, excruciating pain, lachrimation, photophobia, redness and edema of conjunctiva. The surface of the cornea became opaque. The child was attended by a local physician, who irrigated the conjunctival sac and applied cold compresses. The patient was first seen by me on August 7, five days after the injury. The eye presented the picture of a typical caustic burn of the cornea and conjunctiva. The conjunctiva showed numerous areas of necrosis, some large, some small. The cornea was opaque to the extent of being almost white. The destruction had extended into the substantia propria: the pupillary border of the iris could scarcely be seen, and vision was reduced to shadows. The patient was admitted to the hospital and the usual remedies were applied, with no material alteration of the progress of the case toward cicatrization. The eyeball remained irritable and painful. At one time dur-

ing the height of the inflammation the tension seemed increased. This was followed by a gradual diminution of tension until the eye became quite soft. It looked as if it were going on to phthisis. After the more aggravated symptoms were relieved, the child was allowed to go home, making subsequent visits to the hospital once a week up to the present. The cornea is becoming slightly more transparent, and the areas of necrosis in the conjunctiva have undergone cicatrization. The palpebral conjunctiva escaped a great deal of the caustic action of the alkali. Vision in the eye is slightly improved, the patient being able to count fingers at one foot.

An analysis of the paste in the center of a golf-ball said to be similar make to the one causing the accident showed that it consisted of a mixture of barium sulphate, soap and a free alkali (sodium hydroxid, 2.4 per cent.).—*Jour A. M. A.*, April 26, 1913. 40 East Forty-First Street.

The eighteenth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology will be held in Chattanooga, Tennessee, Monday, Tuesday and Wednesday, October 27, 28 and 29, 1913. Lieutenant Colonel R. H. Elliot, superintendent of the Government Ophthalmic Hospital, Professor of Ophthalmology, Madras, India, will be the guest of the academy and deliver the oration in ophthalmology. Headquarters and meetings will be at Hotel Patten. It is expected that reduced railroad rates will be obtained. The program, a preliminary announcement, of which is enclosed, will be arranged to permit members to visit the various points of interest. Never has the academy been more fortunate in the selection of a date and meeting place. Late October is an extremely favorable season in Tennessee, while Chattanooga itself is of greatest historic interest. Hotel reservations may be made from the hotel, through the secretary, or Dr. B. F. Travis, chairman of the Chattanooga committee.



D. W. GREENE, 1851-1913.

IN MEMORIAM.

D. W. GREENE.

It is with profound regret that we learn of the death of one of our most prominent Ophthalmologists, Dr. Duff W. Greene of Dayton, Ohio, who died suddenly August 16th while in his automobile.

Dr. Greene was one of the best known of American Ophthalmologists. His age of 62 years had not lessened his energy or progress in his special field. At the time of his death Dr. Greene was a member of many medical societies, both in this country and abroad, and had served twenty-nine years on the staff of the National Military Home at Dayton, and twenty-seven years as Ophthalmic Surgeon on the staff of St. Elizabeth's Hospital, Dayton.

In recent years Dr. Greene has been prominently before the profession as an advocate of the intracapsular cataract extraction, devised by Col. Smith of Amritsar, India. Dr. Greene went to India and became familiar with the intracapsular operation under Col. Smith's supervision and later was its chief supporter in America.

Among his many contributions to the literature of his specialty are his very valuable chapters on The Intracapsular Extraction of Cataract in Vol. II. of Dr. Casey Wood's *System of Ophthalmic Operations*, and in Dr. Casey Wood's *American Encyclopedia of Ophthalmology*.

The members of the Montgomery County Medical Society of which he was an active member, held a special session at which his many friends in the profession paid tribute to their deceased colleague in glowing terms.

REPORTS OF SOCIETIES

AMERICAN MEDICAL ASSOCIATION.

SECTION ON OPHTHALMOLOGY.

SESSION HELD AT MINNEAPOLIS, MINN., JUNE 17-20, 1913.

(Continued.)

Is the Percentage of Myopic Eyes Diminishing?

SAMUEL D. RISLEY, PHILADELPHIA, PA.

emmetropia and the other condition in adolescents which develops during the next half dozen years. Of course the statistical value of all these questions does not consist merely in curiosity to know whether it is decreasing or not, but to know what conditions have lessened it. A valuable study of that is that of Steiger who took 36,000 children and made an investigation of them as to inheritance in relation to astigmatism particularly. This basic report has been taken by two representatives of the Galton Eugenic Laboratory in London, have been carefully analyzed, and the conclusion is that myopia is dependent on neurasthenia. The final concluding opinion given from the standpoint of the pedagogue is that the Institute (Encyclopedia) of Education which is now in course of publication, the fourth volume having just appeared, written by Professor Burnham of Clark University. He has given more critical study to development conditions in the eyes than anybody else. In this connection a very important fact is that Prof. Burnham, recognizing that astigmatism is a congenital defect and that it produces myopia, concludes that it must be accepted that, notwithstanding surrounding conditions, from 15 to 25 per cent. of adolescents having acquired that congenital form of cornea, will be myopic. The value of Dr. Risley's work lies in the basic fact that, given the congenital abnormality of the cornea, if the strain resulting therefrom can be prevented by glasses, we lessen those changes which might occur later. While Purrington and Karl Pearson, who have written this report from the Galton Laboratory, recognize that astigmatism is congenital and is a basic factor in the development of myopia, they fail to recognize that astigmatism having existed and having been recognized, can be relieved by the use of correct glasses and the development of myopia thereby lessened. It is curious that even Prof. Burnham who has gone

more completely into this simply mentions this fact in the concluding portion of his article in the *Encyclopedia of Education*. He calls attention to the fact that this is a congenital condition and that these cases will develop, but that this does not lessen the necessity of the correction of these conditions by concave lenses. That is the conclusion in this representative educational work. He is probably the most representative man in school hygiene.

It seem to me the work which Dr. Risley has done in having made under cycloplegia these careful corrections twenty-five years ago and having verified the results more recently, and having shown that the correction of the strain by proper glasses does lessen the production of myopia, is a matter of such importance that it should be brought to the attention of the entire world. Dr. Risley's work is recognized—that "astigmatism is the turnstile"—but his conclusions are not recognized.

Dr. A. E. Bulson, Jr., Ft. Wayne, Ind.: Careful correction of errors in refraction is not the only thing responsible for the reduction in myopia. We must take into consideration the great improvement in the construction of buildings, lighting, hygiene, etc. We have adopted the system of school examinations and otherwise put in practice many things that would raise the resisting power of the child: not only his general condition, but the eyes as well.

Dr. Risley is such a painstaking observer and is so scrupulously accurate about everything that I hesitate to criticize him in anything; but I wish to call attention to a criticism I made ten or twelve years ago in reference to the use of the word *mydriasis* when we mean *cycloplegia*. I had the mortification of having an optician call attention to papers published by noted ophthalmologists who spoke of *mydriatics* when they meant *cycloplegics*. On page 106 Dr. Risley says: "The analysis made is only from my private case books and *mydriatic* corrections, the *mydriatic* being pressed to complete *cycloplegia* . . ." As a matter of fact one could not produce *cycloplegia* with a *mydriatic*. It is the case of the old adage, a horse is a four-footed animal, but not every four-footed animal is a horse. Not every *mydriatic* is a *cycloplegie*. I want to make a plea again that when we speak of paralyzing the ac-

commodation we use the term cycloplegia instead of mydriasis. Cocain is a mydriatic.

Dr. S. D. Risley, Philadelphia: I am very glad indeed to stand corrected by Dr. Bulson. He did put that in my ear privately yesterday, but I said I would leave it for Dr. Bulson to make the criticism in the discussion. If the apparent teaching of these statistics is true for all ophthalmologists of the United States and will hold up for all parts of the country, the ophthalmologist has done more for the conservation of vision than all else that has been done. When we come to consider the handicap for any career which the man with high myopia has, when we further consider the large numbers of people with central atrophy, with floating vitreous opacities and all these conditions of high myopia, brought on by overstrain, habits of life, etc., we can hardly over-estimate the value of the work of the ophthalmologist; for, in my conception of the myopic eye based on experience, it is to be regarded as a pathologic proposition and not a simple one of defect, and, as Dr. Lewis has noted in the article on "School Hygiene" in the Norris and Oliver System, it is not only a question of heredity, but of deformity of the skull.

Apparent Esophoria and Its Relation to Convergence Insufficiency.

H. B. LEMERE, OMAHA, NEB.

Abst.—Apparent esophoria is the condition of ocular unbalance in which there is an esophoria in the distance and convergence insufficiency for near vision. The convergence insufficiency is the true cause of the trouble, and the symptoms are relieved when convergence power is strengthened either by operation or exercise. The operation used is the tuck with some important modifications.

DISCUSSION. Dr. G. C. Savage, Nashville: Pseudo-esophoria and pseudo-exophoria as taught in previous writings are conditions of the lateral recti muscles. There can never be over six degrees of either exophoria or esophoria. Anything above six degrees is brought under that other class which has been described. They are due to deficient convergent centers.

After Dr. Lemere's paper appeared in print, I concluded I would look over my last 100 cases of refraction. Two hundred were looked over. The results were astonishing. There

were 50 cases of orthophoria for far and no exophoria in the near. Twenty-five per cent of the cases were orthoporic for far and exophoric in the near, or wanting in convergence power. Ten out of the 200 were exophoric in the far but more so in the near. This is not against the suggestion made by Dr. Lemere. Four cases only in the 200 had exophoria in the far with exophoria in the near. Therefore these cases have been intrinsically esophoric in the far and near and the convergence power had produced spasm, converting it into exophoria. So that that is not against the doctor's theory. The ten cases of exophoria in the far with more exophoria in the near means that these ten cases have been intrinsically exophoric to a greater extent than appeared in the test. The same with the esophoria due to pseudo or contractile esophoria reducing the esophoria. So that in the 64 cases showing variation in the test in the far and near, which is a very good per cent of the 200, we have orthophoria 50, esophoria 4 and exophoria 10 in the far. Sixty-eight were orthoporic far and near; 16 were esophoric far and near; 7 were esophoric for near only. This was pseudo—, and is curable. My criticism of the doctor's paper is that I would not have given plus lenses, but minus where you have in excess of a certain degree. I had 5 of these 200 cases with esophoria in the far only. That could be explained still on his theory. Forty had hyperphoria. Some were hyperphoric without anything else. Some had hyperphoria with exophoria. Nine out of the 200 were esotropic. There was not in the 200 a single case of exotropia.

I have cured many cases by exercises, and not by prism exercises either. The only trouble in the way of curing them is that we cannot make the patients persevere in the exercises. In exophoria for the near I have abandoned prisms entirely, and have the patients buy Christmas candles. The light given by these candles serves as a stimulus to the center of convergence. A paper with a spot or a pencil will not do it. Hold it off as far as you can reach, move it till it gets to 7 inches; then move it farther off. Do this three times the first day, with one additional movement every night until you get up to 15 movements, and then go on with 15 movements every night for one month. Then take on additional exercises every morning, running up to ten movements.

If it is spasm, then the suggestion made by Dr. Lemere

is worth its weight in gold, because we can take these muscles and do for them what he has done and if it converts spasm into tone we have done something wonderful.

Dr. S. D. Risley, Philadelphia: I hope Dr. Savage has made things perfectly clear to you all. It induces psychic vertigo to try to follow him in his theory of the ocular-motor centers. To my mind it adds confusion to what is a comparatively simple matter. Years ago I had the audacity to write that it was probable we never should discover the cause of ocular imbalance, and for this reason: If we are willing to accept the emmetropic eye as the model eye, and a normal physiologic range of accommodation with a normal acuity of vision in both eyes and a normal degree of convergence, then departures from this normal condition grow out of certain deformities in the skull itself. If you will take any number of skulls you will be struck with the variety of forms and how rarely you will find a normal one. And when the anterior segment of the skull is out of place it very naturally changes the form of the orbits, the direction of the orbital walls in which the eye-ball itself is developed, and it must also change the length, the line of traction, the point of origin and the place of attachment of the system of ocular muscles on the ball itself. It is therefore almost certain that you would find a large number of departures from the ideal standard for binocular vision. In the paper which I wrote some years ago on the abnormalities of binocular balance, I pointed out that there were two classes of exophoria, for example: The relative and the absolute were terms which I used. The relative insufficiencies of the internal, which have been set forth in very many phraseologies here this morning are the ones which are

For example, a child is born with hypermetropia, with or without astigmatism. Simple hypermetropes are comparatively rare in my experience, because of the conditions I have suggested; because of the infinite varieties of abnormalities in the skull. But the child with hypermetropia of two or more diopters has been taught by experience the ability to accommodate without convergence up to a certain point. That is a very old story. Donders laid it down for us in the clearest possible terms. Now the child comes to have trouble with its eyes because of the hypermetropia and an upset of its binocu-

lar balance. He comes to us, and, under a cycloplegia, we correct his refraction error, and at once introduce a new feature. He had from birth learned to accommodate without converging; that is to say, if he had a hypermetropia of two diopters, we say he accommodated two for distance without using any convergence and he carried the two extra accommodation up to his near point, the convergence point. Now put a pair of glasses on which corrects the hypermetropia and you leave him with his accustomed two of convergence and it gives him relative insufficiency and he has to learn a new trick. Now that is the condition, in my mind, which has been described here this morning both by the essayist and by Dr. Savage, and it is a more simple statement than to consider things which we cannot demonstrate, except by an apparent demonstration. But to regard it from this standpoint the whole problem takes a simple feature which it cannot have with these terms which have been introduced of spastic esophorias, spastic accommodation, etc. But in practice to simply eliminate the accommodation by cycloplegia and then a careful mathematical correction of the static refraction of the eye and teaching the patient how to use his convergence, and a very large percentage of these complex things fade away like the dew before the sun. I have not had time to carry this same thing into the hyperphorias, etc. Spastic esophorias are in my experience due to lack of vertical balance between the eyes, and not to spastic esophorias. Many cases of intermittent convergence will disappear the moment we correct the vertical imbalance. A prism of two or three degrees, base down, over one eye or the other and let the patient sit in the waiting room with his correcting glass or prism, and the spastic esophoria is a thing of the past. Now that is very simple as compared with the things that have been mentioned here.

Dr. Edward Jackson, Denver: If we take the brain centers in the way in which they are understood in the physiological sense—in the sense in which the terms x and y are used in algebra—it is a very convenient way of working out the problems. They do not mean anything beyond that, except what has been observed by impulses converging from all parts of the nervous system to do certain things and what has been observed in pathology, by interference with function, by de-

struction of a certain part of the nervous system, and I think the terms Dr. Savage brought into the discussion this morning explains the class of cases which Dr. Lemere has called attention to better than I could frame or conceive of. An over-worked portion of the nervous system, whether you call it a center, or whatever you call it, where it is inadequate to the work of convergence that is required of it will explain a tendency to spasm. I do not know how many members of the section have worked at weeding garden, but when I was about six years old they say I objected to it because I had to slant my back so much. I have often thought that that strained, difficult position kept up for some time requires a matter of increased time and difficulty to resume the normal attitude, and I think these cases of esophoria at distance along with insufficient convergence belong to that category. The paper does not state the patients' occupation or how the eyes were used for near work. But certainly a large number of patients over-work the convergence in their habitual occupations, and I take it that many of these are cases of inability to relax the convergence because it is weakened by overwork. That is my understanding of the class of cases Dr. Lemere called attention to.

Dr. Casey A. Wood, Chicago: I would like to use a homely simile. When a man gets an arm tired out, it is tired out, and additional exercise with the idea of driving blood to it would be the worst thing he could do. This is also true of the muscles of accommodation and convergence. There is a distinct difference between the innervation of these two sets of muscles, and I feel very grateful to Dr. Lemere for bringing it before us, because it is very practical, and has given Dr. Savage another opportunity to explain just exactly how it works.

Dr. Oscar Wilkinson, Washington, D. C.: There is apparently a discrepancy in Dr. Lemere's statement. On page 112 he says, "The treatment is carried out without regard to the apparent esophoria for six meters." On the next page he says, "After taking our tuck we do not tie the final knot until we examine the muscular balance with the light at six meters." Now if he takes no notice of his esophoria before the operation, why should he take note of it afterward. Why should not he make the test if he wishes to make a test of the amount of correction of the muscle?

I wish to concur with Dr. Risley in regard to the effort to relieve this class of cases by milder means. Of course I agree that once in a great while we are compelled to operate; but in the matter of exercises, as pointed out by Dr. Savage, I use the black dot on the white piece of paper, and I get results, notwithstanding Dr. Savage, and I use it more frequently. The only question is in regard to the frequency of use. If you do too much exercising, you only fatigue the muscle and do not increase its strength.

One thing should be borne in mind. When you have an exophoria of one in accommodation convergence for near, you cannot use as strong a plus lens on that patient as in a normal case. You have got to reduce the plus lens for reading say one-half diopter. I tell the patient not to hold the print so close to the face, but farther away than the average person would.

The tendency of opticians and a great many men at the present time is to use large lenses. In this class of cases you must specify to your optician smaller lenses in order that you can get the centers of the lenses a little within the pupillary centers of the eye; that relieves the strain on the convergence a great deal.

Dr. C. D. Westlake, Chicago: In my practice I have been very cautious about doing any operation on these muscles until every other means has been exhausted to make the patient comfortable. I hope Dr. Lemere does not wish to give the impression that he has done the advancement or tucking operation without first attempting to relieve these cases by exercises. I have found that by the most careful refraction under atropin, careful correction of the hyperphoria, and careful training of the convergence, I have been able to avoid many operations of this character. In fact I am almost ashamed that I do so few when I know other men are doing so many. In the absolute anatomical cases we must do operations, but the number in which we can get results by correction of the refraction and muscle training is so far in excess of the operations that in my practice the operations are very few.

Dr. George H. Price, Nashville: As to whether there are centers which control certain muscles, that is a question already decided for us by the physiologists, and we have been working on these questions for some time, developing the exact

conditions under which these functions are brought into action.

If the original impulses in infancy were away from a direct line which should be established for normal physiological function of any set of muscles and if, in trying to correct them, we get into any little by-path, we have got the thing started wrong and it takes a long time to break it up. These things that Dr. Risley speaks of, deformities of the skull, would account for this in a measure: but I have seen all sorts of shapes and it doesn't necessarily mean that it determines the eye. The centers are subject to education.

Dr. H. B. Lemere, Omaha: In reply to Dr. Risley I may say that my whole endeavor was to simplify matters rather than to obscure them. I was trying to find some simple, practical solution of these cases. We have certain cases in which, when error of refraction is corrected—and I may say that we always did this under cycloplegia—we still have these patients suffering from asthenopia. Sometimes we have a certain class that we can cure by exercises. We always try the exercises first, provided we think it is at all practicable. A case in point: A young boy came to us with an error of refraction of only half a diopter sphere. The boy was unable to attend school. We found at the same time that he had a deficiency of convergence to such an extent that a pencil point drawn to his eyes, at 18 inches his eyes were suffused with tears. The boy refused to make any further attempt. Consider such a patient, over whom you would have control for only a few days; but even if you had control for any length of time, the improvement of the convergence with exercises would be practically out of the question. In these cases we operate. The cases are few. But when you refuse to operate in such cases because you say they may be corrected with exercises you are wrong. It is for this reason that I brought the subject up. Many of us would hesitate to operate without previous experience if they had this deficiency of convergence and at the same time had esophoria for distance, and make us think these patients would possibly have double vision on attempting to operate. They do not have double vision.

Dr. Savage's suggestion I think is excellent for these cases. I will briefly state our method of exercises. We put on the greatest prism the patient will stand for near by and still have single vision, using a pencil, and retreat until we reach as

great distance as we can. I think Dr. Savage's method is also a very excellent one. I am going to try the candle instead of the pencil.

The cases Dr. Risley mentions of hypermetropia and deficient convergence—I myself am subject to this. I have 4.25 hypermetropia and had trouble at first with the glasses but quickly overcame it. Of course we consider these cases from every point. Practically all these cases have no refractive error, so that it is not the conjunction of the power of convergence and the power of accommodation.

Dr. Wilkinson made a very just criticism. I noticed the discrepancy in the paper. In the operation we do a test in the distance; we do a test for nearby at the same time, but still, in spite of everything, we fear that there may be a little crossed vision in the distance, and that, I suppose is the reason we are not as consistent as we should be.

I wish to state most emphatically that we do not operate unless we are satisfied that we cannot get good results with the exercises. We do not rush madly into operation. We operate on a few cases, but if they are allowed to go they are an opprobrium to ophthalmology, for they fall into the hands of quacks, and they should be relieved.

Some Comparative Measurements of the Skull and Sella Turcica, with the Report of Eight Cases.

BY JOHN B. POTTS, OMAHA, NEB.

Abst.—I desire to bring before the section a subject that has long been one of interest, and in which the ophthalmologists have done much pioneer work; but in which in later years the neurologists have taken the lead. As in the past, the ophthalmologists will frequently be the first to be consulted, and it behooves us to be on the alert to recognize the disease in its early stages, as it is at this time that modern surgery has the most to offer. The x-ray is one of the most valuable aids we have, and I have tried by measuring a large number of heads of people with foreign bodies in the eye to establish the average measurements of the sella turcica, and demonstrate that they bear no relationship to the intracranial measurements, or the size of the accessory sinuses of the nose.

DISCUSSION. Dr. W. H. Mick, Omaha, Neb.: In discussing the paper I shall confine myself to radiographic findings and interpretations. The author is to be complimented

for his earnest endeavor in following out the cases that he has mentioned and others. I can confirm the accuracy of the measurements of the table that he has quoted.

The largest sella, in an otherwise normal man was that of a butcher, whom Dr. Potts will doubtless recall, having a piece of steel of unusual size enter his eye-ball. The sella in this case measured 17 mm. anterior, posterior and 11 mm. in depth. So it is with the sella or the pituitary body as it is with any other portion of the body that no absolute size can be laid down as the accurate size and on the other hand the size of the sella is more closely confined to certain dimensions than the accessory sinuses or the bony parts generally about the head. When portions of the bony wall are absorbed we may look for a pathologic condition somewhere in the brain. This pathologic condition need not necessarily be located in the pituitary body.

A glioma in the brain has very near the same density that the brain has and may not be easily read on a radiographic plate. Thinning of the skull walls may not be noticeable in a very rapidly growing brain tumor. So we have noticed in a number of extreme cases that the first evidence of intracranial pressure, recognized radiographically was by a disturbance of the bony outline of the sella. On the other hand, careful radiographic study of infection of the sphenoid and ethmoid cells have disclosed increased density of the pituitary body, which has given in a measure, symptoms of pituitary disease. When corrected, the density and also the other disturbances, including vision, were improved. One of these cases has been presented by the doctor in Mr. E. C. O. The plates before and after operation show the very beautiful difference produced by the infection of the sphenoidal sinuses as well as the difference in density in the pituitary gland.

Experience has taught us that there are many cases besides pituitary disease, which cause changes in the sella and likewise in the pituitary body. For example, it is well worth emphasizing that the clinoid processes forming the anterior roof of the sella are absent in a certain number of cases when no other pathology is located radiographically. In these cases chronic headache has been one of the complaints. The reason for such headache I cannot give and I trust that some one may be able to enlighten us for its cause. On the other hand two cases shown with this paper by the doctor were advanced

cases of optic atrophy, who had no symptoms of pituitary disease and still the entire sella in both cases was destroyed. This fact led me to investigate changes in early cases of optic atrophy. A diligent search to find changes has resulted in finding them without exceptions within the limits of normal measurements and etc. The post-mortem examination on Mr. C. L., showing the pituitary body normal and still the destruction of the sella complete with an abnormally dense shadow back of it shows how readily compressed tissues cause an increased density in the Roentgen shadows and even destruction of its walls, which easily explains the pressure upon the optic tract.

We have made careful study of the heads of a number of cases of syphilis and in the cases wherein we found changes in the sella, in no two instances are they alike. So radiographically speaking one could not diagnose syphilis infection of the head from changes in the sella. We can, however, suspicion syphilis being the causes if these changes in the sella from the fact that the skull wall is markedly thickened, is irregular in density and last but not least the presence of stellate bodies located in the bony structures. After three years' observation with such diagnosis from stellate bodies alone every patient placed on syphilitic treatment has recovered or markedly improved.

When changes take place in the pituitary body, they are recognized early radiographically. Either be a loss of the upper portion of the bony wall or an increase in the size of the sella or by crowding the sella down in the sphenoidal sinuses. It must not be forgotten, however, that the sella is sometimes found crowded in the sphenoidal sinuses and still normal dimensions from other causes than pituitary disease. This is well illustrated by Mr. O. D., a man with hydrocephalus whose skull has pictured to you intracranial pressure by markedly thinning numerous areas of the skull wall and leaving the sella well in the sphenoidal sinuses, within the limits of normal measurements but at an abnormal angle.

It is needless to mention that in a case of pituitary disease bony changes are recognized elsewhere in the body. Radiographically, and our study has clearly demonstrated that changes elsewhere in the skull cause changes in the sella turcica, and the careful study of Mr. C. L. would convince us that pressure changes destroying the sella, with pressure on the

pituitary body, may cause an over-development of the maxillary and in this case the teeth are usually clear and dense to Roentgen penetration, which is unusual and which I really would not be able to explain in any other way.

In studying the pituitary region, a number of radiographs should be taken, of an otherwise normal individual, which, in our study, have been accidental cases. With between fifty and one hundred normal heads at various ages, from childhood to adolescence, you will have a list with which to compare the pathological plates, and with a number of known well advanced cases of pituitary diseases you will have original records, which will be of material assistance in your plate-reading of future pathologic cases, which come under your observation.

Dr. John B. Potts, Omaha: One thing has not been brought out by the different neurologists, and that is that an inflammation of the sphenoid cell may have some effect on the pituitary body as well as on the optic nerve. I have two cases that bear somewhat on that. In one I showed the radiograph. The other is a woman who never had any symptoms of pituitary trouble, but had retrobulbar neuritis, during which time she developed incipient diabetes, with the passing of an immense amount of water, which has continued even though the nasal and ocular symptoms have cleared up. Dr. Cushing, in going over the same thing in operating on dogs, found that the increased flow of urine began three days or more after the operations.

Blepharochalasis. Report of Two Cases with the Microscopic Examination.

WALTER BAER WEIDLER, NEW YORK.

Abst.—Blepharochalasis is an atrophic condition of the skin and subcutaneous tissues of the eye-lids. It occurs most often in young girls, appearing usually at the age of 14, and always limited to the upper lid. This condition must not be confused with "ptosis adiposa." There are no subjective symptoms, but the deformity and disfigurement makes them seek advice and treatment. The skin of the upper lids is slightly pinkish red, and smooth in the early stage of the disease; later there is a distinct atrophy of the skin of the lids and countless fine lines appear. The superficial veins become more conspicuous as the stretching and atrophy of the skin increase.

The skin and subcutaneous tissues hang down in a baggy, pouch-like mass, the lids seem to be lower than usual, but there is no true ptosis of the lids present. As regards treatment of this condition excision of a portion of the skin, and subcutaneous tissues and orbital fat is the only thing that has given any satisfactory results.

DISCUSSION. Dr. Edgar S. Thomson, New York: I can only speak from the experience of these two cases, both of which I saw with Dr. Weidler. The thing that impressed me most of all, as expressed by some one, was the rapidity with which they did not get well. They remained absolutely stationary no matter what was done. It seems that it is perfectly proper to classify them as dystrophies, and I think there is no question that the angioneurotic edemas have no resemblance either in onset or duration.

The seaton was used after a rather interesting case of facial erysipelas, which was reported in the British Medical Journal. The author describes a thickening of the lids following erysipelas and mentions the use of the seaton through the upper part of the lid and down on the side of the face to establish lymphatic drainage. As Dr. Weidler said, in our cases it was unsuccessful. In view of the operative and microscopical findings, as well as the clinical history, I think operation is the only treatment.

With regard to the nature of this fatty mass I am absolutely in the dark. It did not impress me as of the character of a new growth. In fact I think it is well known that it is dangerous to talk about sarcoma in the tissues of the orbit unless there is well-marked new formation. This had the appearance of cellular tissue more than anything else. It is possible that, if taken during the edematous stage, the seaton might have accomplished more, but later on it certainly seems that operation is the only thing. There was marked disturbance, ptosis, swelling, etc., although Dr. Weidler dissected it with great care, with a minimum amount of traumatism. It all quieted down in a few days and shrank up, and the patient now has good motion of the lid and the case looks very well.

Dr. Arthur J. Bedell, Albany, N. Y.: I wish to show a photograph of a girl of 16, of American birth, in whom for at least five years the eyelids have been thickened, although her physician believes they have lessened in the past year. Examination of the blood, urine, etc., showed no other organic lesions.

As seen in the picture, both eyelids present a brawny swelling and the appearance of ptosis. The lachrymal glands are not enlarged. The patient has refused operation, and so it is impossible to report on the microscopic findings.

Dr. Walter Baer Weidler, New York: The presentation of the paper was due to the fact that, I believe, there are more of these cases than we think. Dr. Lewis says he has seen one in the Manhattan Eye and Ear which he now believes was a case of blepharochalasis.

The operation was first performed on the right side. The incision was made about half an inch above the ciliary margin and about an inch and a half long, and a strip of tissue was taken out 4 mm. in width in the center and tapering on each side. Carefully dissecting down, I removed what appeared to be an excess of subcutaneous tissue of the lid, and then, working into the orbit, removed this mass of fat. Whether this is normal fat I am unable to say. I feel that it is fat which has probably been pushed or pulled forward. Dr. Barker has reported a case which he believes to be true lipoma. The patient, as Dr. Thomson says, had rather marked ptosis and the lid was closed three or four days, but the condition gradually returned to normal and the appearance is good.

I would warn any who do the operation to be careful in inserting the sutures. The first row should begin deep in the orbital tissues and the tissues should be brought thoroughly and well together, and then the skin edges should be brought together as carefully as possible, because a number of cases have been reported of hernia of the fat through the wound afterward, and some cases have been reported in which there was an appearance of keloid in the wound after such operation. I hoped to have a picture of this girl so that you might see the result. I have now operated on both lids. I believe it would be more desirable to operate in these cases after the secondary atrophy has taken place.

Postcataract Extraction Delirium. Report of Eleven Cases.

BY WALTER R. PARKER, DETROIT, MICH.

Abst. A brief historical sketch is followed by theories of the etiology of post-operative delirium. While all agree that heredity plays an important part, and that weakness incident to the operation or disease preceding is only the ex-

citing cause, there is no agreement as to the class of cases which should be included. There is no demonstrable relation between the character of the operation and the psychosis, and no single form of mental disturbance is characteristic of postoperative delirium. Eleven cases are reported and the following observations made: 1. The delirium occurred in 0.29 per cent of the cases operated on. 2. No case showed marked signs of mental disturbance while under observation. 3. One case showed possibility of infection from an old cystitis. 4. The urine was normal in 9 cases, not recorded in 2 cases. 5. Codein was administered in 2 cases. 6. Cocain poisoning is eliminated.

Dr. Edward Jackson, Denver: I recall one case in which postoperative delirium was followed by a serious result in a patient in Wills Hospital some years ago, who in his delirium got out of a second story window and fell and broke his femur. I have never seen a serious result to the eye. Possibly without showing any evidence of the fact, the patient has the eye very much on his mind and so he avoids doing the things that would involve it. It is possible for the delirium to arise from very moderate doses of atropin if continued through several days. It is well recognized that the wearing of a belladonna plaster may, after many days, lead to the production of delirium. We commonly think of such delirium occurring in children, but I have seen it several times in elderly people. I think that can be ruled out, as other forms of poisoning or the results of septic conditions can be ruled out. We have, therefore, the pure post-operative delirium. Perhaps it is more noted in connection with cataract operations, because there is less general disturbance of the patient. But I am inclined to think that it is very largely the element which Dr. Parker brings out in his statistics on the age of the patient, that it is the disturbance induced in a person who is undergoing senile changes that are affecting the mental processes very seriously. These changes do not seem to us very serious, and yet they are more so than we are inclined to estimate them. These patients undergo a complete change of life and routine at a time when they are not mentally able to stand the effect of the shock under circumstances of severe excitement. I think that the bandaging of the good eye when it retains some sight, and perhaps the darkness of the room and the quiet, producing a different set of impressions through the sensory channels that still remain open, con-

stitute another element: but it seems to me it is distinctly a psychosis brought about by mental influences not guarded against by reducing these changes from the normal life of the individual to the minimum.

Dr. Allen Greenwood, Boston: This condition might be called a form of mental shock, and, as Dr. Jackson has suggested, will occur almost invariably among your hospital patients. I have had two severe cases, both in the hospital. The first was a woman of 77 who, at the time of her death, was in an insane asylum following the operation. She never recovered her mental equilibrium. The other patient was delirious for about forty-eight hours. The thing in Dr. Parker's paper that is of particular value at this time is the calling attention to the necessity of, in some way, causing the patients to become accustomed to their hospital surroundings, and, since the patient died in the insane hospital, I have been trying to follow out this plan. In my private practice, if the patient lives near me, I am in the habit of operating in the home. I cannot help but feel that I get better results, with good aseptic precautions, a trained nurse, and with the patients in their home surroundings, among friends, than I can get in the hospitals, with reference to this particular point.

Dr. C. D. Wescott, Chicago: I have had one fatality following such delirium as Dr. Parker has described. There was nothing unusual about the operation. It began within forty-eight hours after a perfectly smooth extraction in a patient of 78 with marked arteriosclerosis. He removed the bandages and opened the wound, but we put him under control with sedatives and the constant attendance of nurses. The wound closed and the eye healed, and, on the tenth day from that, he seemed to be perfectly well. He was happy at the prospect of going home. That day the special nurse was taken off the case. The night nurse that night saw him at 12. At 12:55 she heard a crash. He had got out of his bed, run out of the room, jumped over the rail surrounding the staircase, and was found helpless at the foot of the stairs and died in ten minutes. This might have been a case of a bad dream or a case of senile delirium. My father had an attack of senile delirium on a train. It was a hot day, and he was more or less disturbed and became delirious. During the first day or two of his attack if my father's eyes had been bandaged he would have taken the bandage off. The de-

lirium did not differ in any respect from that described by Dr. Parker. I believe the senile aspect must be considered, and I believe in my case the delirium following the operation had been recovered from, and the delirium in which the fatality occurred was a secondary affair altogether.

Dr. Melville Black, Denver: It seems to me the thing to be considered in these cases especially is to afford absolute mental rest. That can be accomplished by a good many operators. I think, through suggestion. All of us, unfortunately, are not given the same power in that direction. Personally, I have endeavored to give my cataract patients absolute mental rest by the administration of $\frac{1}{8}$ gr. morphine a half hour before the extraction, with a like dose six hours later. This makes them quiet, even if they are not asleep. Their mental condition is at rest. They are not revolving in their minds the possibilities of the outcome. I think we are absolutely justified in saying to the patient himself that the operation is a very simple one, and that there can be absolutely no doubt of a perfect result. It will be perfectly proper to explain to the other members of the family the risks to be taken as a matter of selfpreservation, but the patient should be given the idea that there is no possibility of failure. I think that has a great deal to do with the outcome in these cases.

Another point is to get these people out of bed. I usually operate in the afternoon, some time between 3 and 5 o'clock, while the light is still good, and the next morning when I see the patients I ask them whether they want to get up. They invariably say yes, and I have no objection to their sitting up. The recumbent position is often restful to many people, but not so to many others. The idea is to give them rest. I believe this is not only permissible, but advisable. There are a great many factors to be considered from the standpoint of the individual patient.

Dr. William Zentmayer, Philadelphia: I want to cite two cases showing that it is not always the removal of the patients from their homes that brings about the delirium. The first case occurred early in my career in the practice of Dr. W. C. Posey. An elderly man was operated on at home, and, owing to Dr. Posey's illness the second day after the operation, I was called to see the patient. It had nothing to do with the extraction. On the second night the man became violently delirious

and we had to call in a male attendant. Under hyoseine and croton oil, I believe I was foolish enough to give him, he recovered.

The second case had so many details connected with it that it made it obscure. An old lady was brought from Richmond for a cataract operation for extreme myopia of 16 D. It was successful so far as the immediate operation went, but she was in the hospital three weeks with a low grade iritis. She was sent to the country, which she despised. Her home was to be closed, and just before she left it her son visited her. Then she knew I was going away on this trip. The night before I left she was taken with a delirium which lasted throughout the night. I saw her early the next morning, and she was recovering somewhat. I have not since heard what the outcome was.

Dr. S. D. Risley, Philadelphia: I have seen many cases of post-operative delirium, and, while the majority have recovered, I have seen enough prove serious to make me anxious about them. One man got out of bed and jumped from the second story window and was killed. One of Dr. Norris' patients in my early experience got up and tore the bandage off his eyes and jumped out of a window. He fell 12 feet but was not hurt. With reference to their management, I am sure it is not always being left in the dark. I was interested in the remark made by Dr. Black about the administration of morphin. I do not as a rule approve of the administration of morphin after the extraction operation or any other, simply because it is apt to conceal symptoms and disturb the general nutrition of the patient, and we need all the strength that exists in old people. But, under these circumstances, I believe it is theoretically correct. The symptom-complex is one of senility, and morphin is a cerebral stimulant: but, in place of giving morphin I give hyoseyamin or hyosein in small doses. But, what has been of more importance, the administration of stimulating tonics. A routine mixture of mine for old people after the second or third day is the tincture of cinchona, nux-nux and gentian comp. I have seen mild cases of delirium disappear after the administration of this. In two instances I have seen it disappear after the man was taken out of the room and given his pipe. Some have asked if they could not smoke. I have told them they could have a dry smoke. I get them out of bed as soon as I can. It is a serious thing to put a man of 75 in bed away from his usual environment and from his usual activities.

Dr. Walter R. Parker, Detroit: In practically all that has been written on the subject the argument is made that it must be more than senility or the delirium would be much more frequent. It is probably senility combined with predisposition to some psychosis.

In regard to the treatment of these cases, my experience agrees entirely with that of Dr. Risley. In every case the eye has been unbandaged as soon as the delirium was discovered, and in all cases they cleared up mentally. The hyoscin, morphin and bromides have been used and they did seem in some cases to have a good effect, while in others, one in particular, the dose of hyoscin made the patient very much more wild for the time being. The dose was repeated, however, and the patient became quiet. I cannot speak of any one drug especially as being good for routine treatment.

I believe we do not give enough care to these patients. I put the patients, immediately after the operation, into a small ward with three beds with a special nurse. They remain there until the anterior chamber is closed, when they are put into the general ward. Two developed immediately on being placed in the large ward. I think if they could have special attention, a friend with them, perhaps, there would be less of these cases. But certain cases come on and persist for many days, and nothing seems to relieve it.

Surgical Treatment of a Certain Type of Penetrating Wounds of the Sclera by a Double Conjunctival Flap.

BY LEE MASTEN FRANCIS, BUFFALO, N. Y.

Abst.—The use of a flap of conjunctiva as described by Kuhnt and others, to cover penetrating scleral wounds, a well-established surgical principle. Reasons for closing all scleral wounds of three millimeters or more with scleral sutures in addition to conjunctival plasty.

In wounds located far enough back from the limbus to admit of proper elevation of the conjunctiva, two flaps may be made of the conjunctiva, which will serve the double purpose of drawing the wound edges together and providing a proper conjunctival covering.

The advantages of the double flap are: 1. Because of the traction exerted by the two flaps, the scleral wound lips are held in firm opposition. Consequently relatively large scleral wounds

may be rapidly and safely closed without stitching the sclera.

2. The resulting scar is thicker, firmer and more unyielding.
3. Two layers of sound conjunctiva protect the contents of the globe from outside infection.

DISCUSSION. Dr. John A. Donovan, Butte: There seems to be no definite treatment for any two particular injuries. The question comes up as to the necessity of closing the wound at all, and whether, by just letting the two edges come together, we would not get a better circulation. The patients I see may be injured in the shops and on the railroad 250 miles away on each side of me, so that it is a day or two before they get there, and many of them come in with the wounds already closed. If there is no foreign body in the eye, I invariably leave them closed. The results of leaving them alone are better than from butting in. I have found in practically all injuries the less you do the better off you are. The greatest danger of infection is at the time of the operation. He says the advantage of the double flap is strength and support. Are they of advantage? When I see a bad wound in the sclera with the virus protruding I have been inclined to get the eyelid closed as quickly as I could, and, unless I see decided indications to the contrary, notwithstanding the authorities that they should be covered, my experience has been quite good, by getting the wound clean, closing the eyeball, making gentle pressure and leaving it alone.

Dr. W. H. Wilder, Chicago: The question whether or not it is best to suture scleral wounds is, of course, a very important one. I have found that there are a number of cases in which this could be done very satisfactorily without putting in an absorbable suture. I have made use of a little procedure which I have not seen described which has, in the few cases in which I have used it, proved very satisfactory indeed. It includes a silk suture into the sclera. It is applicable to any wound in the sclera. The method must be adapted to the wound; in other words, we cannot have anything like a typical operation in these cases.

(Dr. Wilder then illustrated his method of treating a wound in the sclera and gave the results in one case.)

Dr. Allen Greenwood, Boston: There are two or three things to be remembered. You have an eye usually from which some vitreous has escaped. You must handle it with great care.

It is one of the most delicate operations in ophthalmic surgery. If you do not sew up a wound in the sclera in an eye that has a protrusion of vitreous and ciliary body, the eye is pretty sure to be lost, and I know of some eyes today that are saved by what I would call conservative surgery. In one case in which you could have seen the fundus of the eye through the wound in the sclera, I did an advancement of the conjunctiva underneath the upper layer, being careful that neither I nor my assistant made pressure on the eyeball. That man has good vision to-day. I feel that if it had been left open I never would have got as good a result. These operations apply particularly to the cases a short time after the injury. Dr. Donovan sees his cases much later, which is a different problem. I think Dr. Francis has given us a very valuable suggestion.

Dr. Lee Masten Francis, Buffalo: The point of this procedure is to avoid stitching the sclera, which perhaps in the experience of an operator such as Dr. Wilder is not important; but it is something which I approach with a great deal of respect. I believe that a relatively large scleral wound can be closed with the double conjunctival flap, and the strong point about the procedure is that the flap not only covers the wound but it exercises traction on the wound along proper lines.

Primary Lues of the Bulbar Conjunctiva.

BY CHARLES NELSON SPRATT, MINNEAPOLIS, MINN.

Abst.—Six to 7 per cent of all chancres are extragenital. About the eye, the margins and skin of the lid are the most and the bulbar conjunctiva and limbus the least frequently involved. The author reports the case of a nurse girl, aged 37, who had the care of a syphilitic infant. Twenty-one other cases have been found in literature. All except one were in adults. There were five nurse maids and two physicians. Right eye involved ten times, left six, not given six. Eight were situated on the nasal; four on the temporal; four on the inferior; four on the limbus; two not given. Mode of infection: 1. Direct, as by kissing, coughing, splashing of fluids, etc. 2. Indirect. Infection carried by the hand. 3. Mediate, instruments, etc. Symptoms. No pain noted, except when chancre is on limbus. Diagnosis: Marked chemosis, with hard indurated area with a central ulcer, and enlargement of pre-auricular gland.

DISCUSSION. Dr. Arthur J. Bedell, Albany, N. Y.:

In connection with Dr. Spratt's paper I would like to speak of an unreported case of "Initial Lesion of the Lid and Bulbar Conjunctiva."

Mr. E. F. R., aged 25, a coachman by occupation, presented November 18, 1910, giving a history of first noticing a small red pimple on his left lower eyelid about two weeks before. This was scratched with his finger nail until it bled. Two days later the sore became more painful and after the usual home remedies had failed, he applied for help. Ten days previous to this time the left pre-auricular gland became enlarged and seems to have remained the same size since. He had had no pain or ache except left sided, frontal discomfort for a short time after rising. Denied lues; had had Neisser infection but no other serious illness. Had used tobacco and alcohol excessively.

On examination, the right eye was negative except a refractive error. Vision 20/30.

The left eye V 20/50, showed congestion and swelling of both eyelids, the lower lid indurated, especially the outer third which surrounded an irregular area of necrosis, 12x6 mm.; eroding through skin and conjunctiva destroying the hair follicles. The ulcer had a punched out appearance, with irregular margin, the base was covered with a grayish green false membrane, easily removed showing a grayish blue surface which did not bleed freely. Induration about 2 cm. Although, on scraping, considerable serum oozed, the structure remained unchanged.

The cornea was clear, the palpebral conjunctiva slightly injected; the bulbar edematous with full vessels, to the temporal side of the limbus was an irregularly round area 4x5 mm. in size, in opposition with the ulcer on the eyelids. The iris was not congested and the inside of the eye presented no abnormality except an oval disc.

The left pre-auricular gland was swollen, about 15 mm. in size and the overlying skin reddened and painful. No sign of skin lesion.

Dr. James F. Roomey made smears of the serum and found (sprostata palsida).

There was steady extension of ulceration, greater lid swelling and gland enlargement even under unguentum hydrargyrum.

On December 11, 1910, five weeks after the first symptom, he developed a dark red maculo-papular eruption on the back of his hands, a few hours later it appeared on his abdomen, then on his legs, gradually his face and body.

On December 21, he had a definite secondary fever with malaise and depression. The left, lower lid was immensely swollen, although the ulcer was cicatrized except at the borders where bleeding was easily induced. The mass had a more characteristic cartilaginous feel, the ulcer on the bulbar conjunctiva becoming smaller with much less surrounding congestion.

Patient had two injections of salvarsan, and made a slow but good recovery. It is interesting to give the theory as to his infection. In a stable where he worked a fellow employee had a secondary palmer syphilide so that it seems possible that the infection could have been transferred to the reins, and, later, the patient, using the same harness, could have conveyed the active virus on his fingers to his eyelid and so infected himself.

Dr. Charles N. Spratt, Minneapolis: I have indirectly heard of another case that occurred in San Francisco. That is only four cases so far reported. It is a very rare condition. It seems singular that it should be so rare, when lues is quite prevalent and people do not always wash their hands.

Discussion of Dr. Nelson M. Black's paper: "Illumination, A Factor In Ocular Discomfort," by Herbert E. Ives.

Dr. Herbert E. Ives: Coming before you as the representative of the Illuminating Engineering Society, I wish to express the gratification we feel in seeing this immensely important subject of illumination being brought before you as a problem for the ophthalmologist. Also, I want to express my satisfaction in noting that this is a joint paper, by an ophthalmologist and an illuminating engineer, for, if I can do nothing else in the discussion, I wish to emphasize the fact that, for progress in this line, it is essential to have the co-operation of these two men—the ophthalmologist and the engineer. Whether this co-operation takes the form of joint action with the Illuminating Engineering Society through joint committees, or through the co-operation of individuals, as in the present case, perhaps matters little, but the two points of view must be both considered if artificial light is to be rendered free from danger to the public.

The Illuminating Engineering Society was founded for the study of the production, measurement, and utilization of light. It started out as a body of electrical and gas engineers. Later we have added physicists, architects, ophthalmologists, physiologists and psychologists. What we have accomplished may be described as objective; what we have not, as subjective. We have analyzed light into what we consider its important elements—color, intensity, direction and diffusion. I feel safe in saying that, given the money and a fire-proof laboratory, we can produce any conceivable sort of illumination; we can copy daylight; we can produce light containing no heat rays; light containing no ultra-violet; light coming from above, from the side and from visible or concealed sources. As far as the physical analysis and synthesis is concerned, we are well equipped. When we turn to the subjective side, however, we meet limitations. The eye is the ultimate consumer, and we have learned by sheer experience that the greatest engineering efficiency is not the greatest visual efficiency. An engineer would expect the most efficient illumination of a printed page to result from pouring all the available light upon it. We find, however, that it is much better to put some of the light on the surroundings, thereby lessening contrast and preventing ocular fatigue. It is then that we need the ophthalmologist. We want to know about the eye. We have no means of testing whether an illumination is affecting the eye beneficially or detrimentally.

Specifically we need test methods. The classic tests for ocular efficiency are woefully inadequate. Visual acuity, perception of brightness-difference, and color-difference perception, are altogether too crude. Their indications are not definite enough to distinguish between illumination conditions so extreme that mere inspection would condemn one as acutely uncomfortable and commend the other as admirable. To the psychologist and the ophthalmologist we look for new and scientific means of determining when the eye is abused.

Reciprocally, the light specialist can be of assistance in this work to the ophthalmologist. He can insure that the various physical factors are viewed in their right proportions. He can keep the ophthalmologist from "barking up the wrong tree." For instance, he can, from his physical analysis of light, point out that there is no significance to a discussion of the relative comfort to the eyes of oil, gas, electricity or daylight. The manner of production of light is a mere accident.

The real factors are intensity of illumination, color of light, the intrinsic brilliancy of the visible bright surfaces (of light-source or illuminated object) and the direction and diffusion of the light. The much lauded student-lamps can be exactly copied by gas or electricity; it is a light source of rather low intrinsic brilliancy, concealed from the eye, of yellow color, and so made that it must practically be used as a side light source. If it has great merit, it is entirely in these copiable factors, not in its fuel. Again, the lighting expert can inform the ophthalmologist that the ultra-violet light in ordinary light sources is far less by actual measurement than in a corresponding amount of innocuous daylight. He can, too, point out that practically all artificial light sources have an enormous excess over daylight of infra-red, or heat radiation, and that here, therefore, is the logical point of study, rather than the much advertised ultra-violet. But perhaps the greatest pit-fall for the non-engineering student of lighting is the common confusion between illumination and intrinsic brilliancy. Do not confuse a bright light with a high illumination; they may or may not go together. A tungsten filament of 1000 candle power per sq. in. gives just as bright an illumination on the table if one wears an eye shade, but the difference in comfort between seeing the filament and not is enormous.

Perhaps I can make more clear the present state of illuminating engineering and its needs by an illustration of the only method of test we have for visual efficiency. This is what lawyers call "the care system." If we find an illumination system that looks good, we analyze and copy it. The danger is that we will copy a lot of non-essentials. Why, it will be asked, do we not then simply copy pleasant daylight illumination from windows, proved good by experience? Analyze daylighting from windows and it is found to be illumination chiefly from a large area low intrinsic brightness concealed light source (the sky), entering at the side and producing a range of visible brightness of about 200-1. By night we light the same room by a small visible, high brightness source from above, 95% of it heat radiation, producing a range of visible brightness of 100,000,000 to one.

I have recently calculated that to accurately copy daylight in a room, thereby changing in this radical manner the method of artificial lighting, would involve spending more for the

lighting of one room in a night than the rent of the whole house for a week! The illuminating problem is, therefore, one of the conservation of natural resources as well as the conservation of vision. It is necessary to know what the eye must have for health and what it can dispense with. Only by the co-operation of the ophthalmologist and the engineer can this come about.

(To be continued.)

SECTION ON OPHTHALMOLOGY, ST. LOUIS
MEDICAL SOCIETY.

MEETING APRIL 2, 1913.

DR. E. H. HIGBEE.

A Case of Foreign Body in the Eye Ball.

There are times when even an oculist is in a quandary as just what to do for a patient, and this case clearly demonstrates this fact. I think a paper could be written upon this case entitled, "The Oculist Dilemma," as you will see by the following history.

His physician, when referring him to me, said, "I cannot diagnose his trouble as the result of an injury." When I first saw him I found a complete synechia of the iris, some swelling of the lids and marked injection of the conjunctiva and sclera. Tension, minus; no marked tenderness on palpation of the globe; no complaint of much pain, but this is uncertain, for the patient is a Greek and understands but little English. He said he had been struck in the eye with a piece of hot rivet, about one month before, and had been treated by a physician who seemed to think that his trouble was specific, but who did not use atropine. I had a radiograph made, and this shows a foreign body 5 mm. below the horizontal plane, 5 mm. to the temporal side of the vertical plane, and 4 mm. back of the center of the cornea. I advised him first to have the eye removed for the situation of the foreign body seemed to show that it lies in the ciliary region. He refused to have the eye removed for the situation of the foreign body seemed the foreign body. This he also refused to let me do. As near as I can determine, he has rich relations in Athens who have advised him to have nothing done over here, but to come home and have the eye attended there.

Now my hands are tied, so to speak. I know what this

man should have done, yet he refuses. I also feel that if he had proper care in the start he might probably have been able to retain his eye ball (a very important matter with most people). Yet I cannot do anything to eliminate faulty early treatment. I expect to send a letter with him, to his oculist in Athens. Will he deliver the letter? Will the Athens' physician believe what I tell him? So I say this is at least one of the oculist's dilemmas. To-day he told me he was hurt January 12th, and he came to me February 3rd.

DISCUSSION.—Dr. Shahan: I can recall a case similar to this in a boy 8 or 10 years of age. While he was playing with a tenpenny nail on the end of an elastic band, the nail got loose, flew back and struck him in the eye. The anterior chamber was filled with blood so that at first I could not gauge the extent of the injury. I thought probably an iridodialysis had occurred with haemorrhage into the anterior chamber. I watched the eye from day to day and about the second or third day the blood cleared away very rapidly so that vision came up quite decidedly. About the fourth or fifth day the haemorrhage was all gone except a small clot in the lower nasal quadrant. Following this, vision came up to normal. When the clot disappeared, a small cilium was found to have occupied its center in the anterior chamber. I observed the cilium for several months. It is still there apparently doing no harm whatever.

I recall another patient who came from a clinic in considerable terror, having been advised there that his eye must be removed. He had been struck on the sclera by a piece of steel which had cut to the choroid but had not penetrated the globe.

His vision was very low, but, under ordinary treatment, the inflammation rapidly subsided, the haemorrhage cleared away from the anterior chamber, the vision became about 20/30, at which point it has remained.

Dr. Post: I would like to ask Dr. Higbee if he took any precaution, so that this patient will not sue him for damages later. Damage suits are now very rare, though at one time they were very frequent. I recall a case where the advice was not taken to remove an eye; later, the other eye was lost and the doctor whose advice was ignored was sued for damages three times. I always feel that where I give advice to remove

an eye and the patient rejects it, that I must take some special precaution to protect myself in case later on the patient should think it a good plan to try to get "some of the doctor's money."

Dr. Shoemaker: In connection with the injury of the cornea in this case of Dr. Higbee's, I should like to report a case, interesting because of a marked change in refraction following the injury. A boy, about 8 years of age, who had been wearing a plus 0.5 D. s. prescribed by a competent oculist. While playing with some other boys, he had filled a bottle with water, then, corking it up, put it in a fire and watched developments. The thing exploded and a piece of glass struck him in the eye, producing a cut through the temporal half of the cornea and into the ciliary region. There was some prolapse of the iris, but no iridectomy was done. It healed up very nicely with a light disfigurement of the pupil. There is not much astigmatism. He accepts no cylinder but does accept a plus S. D. spherical which gives him 18/24 vision. I cannot account for the change of refraction unless it is due to a change in the position of the lens.

Dr. F. Parker: In regard to Dr. Post's remarks on malpractice, will say I had a patient referred from out of the city to me, suffering, as he thought, from a cold, or conjunctivitis. Upon examination with the x-ray, I found a foreign body in the eye, and advised removal. This procedure was objected to very seriously, and I was also threatened with a malpractice suit, which, had I not had the x-ray picture, would likely have been brought.

Dr. Higbee, closing: Answering Dr. Post, I would say that I have taken no special precaution in this case. These fellows have an interpreter, who is a very intelligent fellow, who explains to them that they are being properly cared for, and as a rule keeps them out of the hands of the lawyers, especially that class of lawyers who make blackmail their specialty. I think that the x-ray, combined with what I have told the man, also the testimony of those who have seen him, would be sufficient to convince a jury that I had told him the truth, and also that I had also done all that could have been done under the circumstances.

Pictures of Malignant Syphilis, with Demonstration of an Adapter for Taking Stereoscopic Pictures.

Dr. W. H. Luedde: The patient here presented, who has

just passed through an interstitial keratitis involving both eyes, was under treatment at the same time that the case of malignant syphilis was under by observation. The contrast in the course of the disease in the two individuals was striking.

They were both young white men, one aged 23, the other 26. The case that ended fatally showed much better physical development. Even the case record made at his admission to the City Hospital one month before his death describes his general condition as "well nourished." This statement is not entirely accurate as he went to the hospital after he had been wasting away gradually for six months previously.

The man, here present, in contrast, shows stunted growth, marked kypho-scoliosis and was the victim of a chronic suppurative diagnosed as psoas abscess, several years ago. No suspicion of luss existed in the mind of the family physician, but the diagnosis of tuberculosis confirmed by a von Pirquet test, in addition to the other findings when the corneal involvement first appeared in the right eye seemed to cover everything. In this feeble individual the Wasserman test was I I I I whereas in the well nourished man it was feebly positive in the early stage and negative just before the fatal result. This adds another instance to the general experience showing the unreliability of the Wasserman test as a measure for the severity of luss in a given case.

In both cases the clinical diagnosis of luss was satisfactorily established. In the one syphilis was clearly a hereditary disease; in the other it may have been acquired, though no facts relating to the infection nor early symptom could be elicited. All physical signs were lacking.

The detailed clinical history cannot be repeated in this short abstract. The fatal case first came under Dr. H. E. Miller's observation on account of a nasal sinus disease with some external swelling apparently connected with the frontal sinus. An external operation by Drs. Miller and Schlueter showed unusually extensive necrosis, making operative relief hopeless. Vigorous specific treatment (Hg. & K. I.) which had been begun by Dr. Miller was continued. Examination of tissue sections showed "chronic inflammation."

Cultures showed staphylococci, a finding taken to be of little importance in chronic processes. Increased swelling of the eyelids with subsequent sloughing brought the case under my

observation. Salvarsan injections both before and after his admission to the City Hospital did not stay the progressive destruction of the tissues, bony as well as superficial. He began to show marked weakness and died at the City Hospital scarcely eight months after the beginning of the attack. Shortly before death the Wassermann test was negative. If this can be taken as a credit to the treatment, it remains a fact that the patient died.

In the other case, while the patient has recovered with scarcely a trace remaining of his attack and has gained in weight, etc., the Wasserman test, at present is I I I I, as at first after the same general treatment including one injection of Salvarsan. These stereoscopic pictures of the fatal case were made with a pair of specially designed spectacle "fronts" added in front of an inexpensive Brownie Stero-kodak. This is an idea which is demonstrated here for the first time. It has practical value because it enables one to get pictures which portray special clinical processes in a more life-like manner than ordinary photographs without the expensive apparatus hitherto required. The "fronts" consist of a pair of prisms with bases in, combined with convex spherical lenses of any desired strength according to the size of the image desired on the films. Any oculist can make them up from his trial case by using a frame with an open cell as here shown, or, they can be ground to order by the optician. Incidentally this demonstrates the value of trial lenses with special rings referred to at the last meeting of the section. The other stereoscopic photographs are from interesting specimens in Dr. D. L. Harris' collection at the Snodgrass laboratory.

DISCUSSION. Dr. R. Schlueter: This was an exceptionally interesting case to us, who were compelled to see it off and on during the several months and will probably never be forgotten, because many a time we held a consultation to figure as to what we could do for him but at every step our efforts were utterly futile. In the description of the original condition, I have a somewhat different impression from that of Dr. Luedde. I do not want to say mine is more correct, but he saw the case at a time after we had mutilated him. When I first saw him he had nothing externally over the region of the frontal sinus. The history which I received from Dr. Miller, when first called to his office, was that the patient had come

with an inflammatory condition in his nose, extending up towards the orifice of the frontal-sinus. To relieve this frontal sinus condition, Dr. Miller had taken off a piece of the anterior portion of the middle turbinate. The bone, which he removed, as well as the soft tissue, showed necrosis. Microscopical report: Chronic inflammatory tissue. Now before I saw him a swelling had occurred externally just below the right lower eyelid, involving the inner third. It was small at first, very small, the necrosis on the inside of his nose had extended somewhat, to what extent I could not see because we could only feel the bone. Between the skin and bone there was an area which showed that the soft tissues had loosened up from the bones. On the swelling was a small sinus. In this we could also feel denuded bone. After cutting down and enlarging that opening in his lower lid and continuing it upward and inward as far as we could see necrosed bone, we found that bone attached very firmly. So there was no need in the face of this suppurating condition to do anything more after we found out the extent of the trouble. The necrotic soft parts were removed from the nasal surface. The nasal process of the superior maxilla was entirely denuded. A clinical diagnosis of syphilis was first made by exclusion. No other condition which we could imagine, could produce such kind of destruction. We gave him anti-syphilitic treatment and had a Wasserman reaction made. The process continued. I did not see much of him but I think there was very little change in this condition except that it steadily progressed. The process did not respect any bone sutures. These seemed to offer no impediment.

Dr. Loeb: I would like to suggest the use of dionin in the first case if he has not used it. And secondly, I would like to know if any attempt had been made to demonstrate the *spirochaete pallida* in the sound of the other case?

Dr. Higbee: I have tried dionin in corneal opacities with very indifferent success. A short time ago I had a case in which a corneal opacity appeared outside the line of injury and found that by massaging the cornea it seemed to clear up. Since then I have used massage without local medication in several cases of keratitis and have had some very gratifying results. These cases were under internal medication which no doubt had considerable to do with the absorption of the opaci-

ties, yet I think the massage had something to do with the result, owing to the fact that they improved much faster than treatment I had used before on similar cases.

Dr. Post: I would like to say that years ago I tried massage pretty thoroughly in haziness of the cornea, and I never saw any good result from it. I used salves with it but was disappointed with the result of my efforts to make the cornea clearer.

Dr. Luedde, in closing: No attempt was made to demonstrate the spirochaete pallida. As Dr. Schlueter has said, anti-syphilitic treatment was given him on the clinical diagnosis of syphilis. The feeble Wassermann reaction was obtained before I saw him. We tried every available means to check the necrotic process, but our efforts, as well as those made at the City Hospital, were wasted.

In answer to Dr. Loeb's suggestion, I would say that I used dionin many years ago, watched it carefully and compared it with other cases in which it was not used. I failed to see any real advantage in dionin in cases of this kind. I know that some observers have made claims for it, but we all know that some corneal infiltrations and scars clear up much better than others. When we get good results we are likely to give credit to the method used. If we fail, we take that case to be an exception to our favorite method. The rapidity with which this case has cleared up would have added to the reputation of dionin had it been used. As it was not used, it shows how much can be done without it.

Anterior Scleral Trephining in Glaucoma.

Dr. J. Ellis Jennings: Since the introduction by Von Graefe of iridectomy as a cure for glaucoma, it has been the means of saving countless thousands of eyes from blindness. The experience of years, however, has taught us that while iridectomy insures a permanent cure in inflammatory glaucoma, it is of little or no value in about 50 per cent of cases of chronic or simple glaucoma. Nevertheless iridectomy is the operation of choice even in simple glaucoma with the chances of success greater if the operation is undertaken in the early stages of the disease. When iridectomy fails to permanently reduce increased tension, other measures for its relief must be resorted to. First in importance in sclerotomy introduced by Wecker as a substitute for iridectomy on the assumption that

the section in the sclera was of greater importance than the excision of the iris. He considered the significance of the scleral incision to lie in the fact that by means of it a cicatrix was introduced into the sclera, which allowed fluid to filter through it. It is now thought that the value of this operation is due to the deep incision cutting through the root of the iris, thus opening up drainage through the spaces of Fontana and the canal of Schlemm.

One of the newer operations for the relief of glaucoma which really does cause the formation of a cystoid scar is trephining the sclera as advocated by Fergus and Elliot. In the 1911 year book Fergus says the operation has so far given entire satisfaction, but defers any attempt to estimate its value until he has had larger experience with it. Elliot has done 128 operations, the bulk of them under cocaine anaesthesia, usually combined with adrenalin. In six operations some vitreous was lost; in five cases the trephine failed to enter the anterior chamber and a small curette had to be used. In sixty-five of the one hundred and twenty-eight operations the trephining was followed by removal of a portion of the iris; in fifty-seven a small peripheral iridectomy, and in the other eight a large complete iridectomy. In his later cases iridectomy has been less frequently demanded. Seventeen cases were examined after intervals of from thirty-seven days to one year. In all but one of them the filtration continued free and good. In this one it was doubtful but the tension remained normal. The technique of the operation is as follows: The first step is to make a large triangular flap of conjunctiva, beginning 10 mm. above the limbus and having it 7 mm. wide. The flap is dissected down to the corneal margin with scissors and then by careful dissection with the blunt pointed knife the flap is carried still further until the dark crescent of the sclero-corneal junction is seen. In this way the outer most layers of the cornea are separated a short distance continuously with the conjunctival flap. The flap is now turned down upon the cornea, and the trephine is started as far forward on the cornea as the flap will admit (at least $\frac{1}{2}$ mm.) being careful in turning the trephine to keep it at right angles to the eye ball. The tendency of all operators is to cut through first on the side nearest to them. As soon as the sclera is cut through the aqueous wells up and often with a bulging of the iris into the

wound; this is cut off, making a limbal iridectomy. The tag of sclera is removed with fine forceps and care must be taken not to let this tag fall or be pushed into the anterior chamber as has happened in a number of cases. The flap is now replaced and retained by one or two sutures.

My experience with this operation is limited to two cases: Case 1. Mr. C. B., age 67, was first seen by me in September, 1912, giving a history of repeated attacks of pain for several years. When I saw him, the eye ball was red and painful, the anterior chamber very shallow, the pupil about 4 mm. in diameter, the lens opaque and the T plus 2 with no perception of light. Eserin, first in weak solution, and then in stronger, up to 1 per cent, were used without effect either in contracting the pupil or in reducing the tension. As in my experience little or no benefit is to be derived from iridectomy when eserine does not contract the pupil, I decided to trephine the sclera. The operation was done November 14, 1912. With the removal of the tag of sclera there was a gush of aqueous, but no prolapse of iris. I then replaced the flap, and secured it with two sutures. Three months after the operation the patient returned for examination. There had been no return of pain and the tension was normal.

Case 2. Mrs. J. G., age 54, consulted me September 26, 1912, on account of defective sight of the right eye. V. R. 15/100, L. 5/4. A fundus examination of the right eye showed the detachment of the retina above, below and to the temporal side. She was kept in bed for two weeks with the eyes tightly bandaged, but, as this treatment had no effect on the detachment, she went home. March 10, 1913, she returned with a history of severe neuralgic pain in and about the right eye of five days' standing. The eye ball was intensely injected, the cornea steamy, the anterior chamber almost obliterated, the pupil semi-dilated, the lens opaque, no light perception and the tension was reduced to normal. The conjunctival flap was the pupil or reduce tension. I trephined the sclera on March 14th. After the tag of sclera was removed I was surprised at not seeing a gush of aqueous and a reduction of tension. So I introduced the delicate forceps into the anterior chamber and tried to draw out a portion of the iris, but it was evidently glued fast and would not come. I then made pressure on the globes until a large bead of vitreous welled up into the wound, when

the tension was reduced to normal. The conjunctival flap was secured in its normal position and when I examined the patient sixteen days later the tension still remained normal and the patient was free from pain.

DISCUSSION. Dr. Charles: When the literature on trephining first appeared, it appealed to me because of my experience with a case which I reported to this section in 1909 of "Scleritis with Perforation and Formation of a Conjunctival Cyst." A negro woman was admitted to the Female Hospital giving a history of rheumatic pains and ocular discomforts for a long time. There had also been present a lump above and to the inner side of the cornea.

The eye exhibited a hypopyon ulcer, iritis, ciliary tenderness ($V=$ digits at one foot), a large subconjunctival "cyst" upper and inner quadrant. Pupil excluded. After dilatation with atropia the subconjunctival fluid disappeared leaving visible a large round hole in the sclera over the ciliary region which was fully 3 mm. in diameter and so clean cut as to look as if the sclera had been trephined. When the nurses forgot the atropia and the pupil again closed, the "cyst" reformed. The case convinced me that since it was possible to maintain an open communication between the interior of the eye and the subconjunctiva, the plan was feasible to establish drainage at the filtration angle.

Dr. Loeb: I should like to ask the doctor if he remembers the condition of the retina in that last case, whether it was still detached?

Dr. Luedde: I have a set of Meyrowitz trephines. They have a small handle to be used for regulating the pressure and for lessening the tendency to cut through unequally. I think this operation may be helpful. It would be more accurate for purposes of record and comparison to take the tension in these cases with a standard tonometer. The old method of indicating tension as normal, plus 2, etc., is so much a matter of personal interpretation that it lacks scientific accuracy.

NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Building, State and Madison Streets, Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

Dr. Carroll B. Welton and family of Peoria, Ill., are in Europe.

Drs. J. F. Hill, W. Likely Simpson and Robert Fagin of Memphis, Tenn., have formed a partnership for the practice of their special work.

Dr. Albert E. Mason, formerly of Atlanta, Ga., has removed to Waycross, Ga.

A large office building for physicians is to be erected in Los Angeles in which the Los Angeles Medical Association will also have quarters.

The new Toronto General Hospital, recently opened, has a public ward devoted exclusively to eye, ear, nose and throat cases, accommodating forty-four patients.

Dr. Wm. J. Ryan will have charge of the Southwark school branch of the Eye Dispensary of the Philadelphia Department of Public Health and Charities.

Dr. Daniel W. White, who was formerly in the U. S. Government Service as trachoma expert, has located in Tulsa, Okla., where he will engage in the private practice of his specialty.

Dr. Ernest B. Hoag, who has been acting as special director of school hygiene for the Minnesota State Board of Health, has completed his work. Dr. Hoag expects to return to his former home in California.

Dr. W. R. Dabney of Marietta, Ohio, has been confined

in the Longview Asylum for the Insane at Cincinnati. It will be remembered that Dr. Dabney suddenly became insane while operating in his office recently.

The 18th annual meeting of the American Academy of Ophthalmology and Oto-Laryngology will be held at Chattanooga, Tenn., October 27, 28, and 29, 1913. The Academy will have for its guest Col. R. H. Elliott of Madras, India, who will deliver the address.

In a letter addressed to the Board of Education yesterday Dr. Barnett L. Becker of 215 East Broadway asked the Board to inform all principals and teachers in the schools that he would give 3,000 pairs of eye glasses free of charge to school children with defective eyesight who might be sent to his office with orders from principals, teachers, or visiting school nurses. He added that a station for the distribution of such glasses to school children of Harlem and the Bronx would be established at 102 Lenox Avenue and one for children of Brooklyn at 1719 Pitkin Avenue.

It frequently has been suggested that the city should furnish glasses free of charge to school children with defective sight who cannot pay for optical examination and treatment, but hitherto nothing has been done in the matter. It was explained on behalf of Dr. Becker that he himself had risen from a poor east side boy to a man of means, and that in his present offer he desired as best he could to aid other east side children to overcome difficulties and make their way in life.—(N. Y. Times.)

Some few years ago the medical profession was alarmed by the report that rum produced blindness, and as a consequence the valuable and tried stimulant, tea, fell into disrepute here (in Hungary, tea is drunk with rum). After a time equally bad reports came of other brandies and liquors, the sight being affected in all cases. In some instances death followed, the lethal effects being found to follow the many compounds placed on the market to give the flavor of old brandies to raw cheap spirits. Examination having been made as to the source of poisoning, it was found by Professor Tellestar that the toxic agent was methyl alcohol (wood alcohol) which is manufac-

tured in Hungary in great quantities for industrial purposes. Since that time there have been several poisonings due to methyl alcohol, which would formerly have perplexed the doctor. It was found, for instance, that even the prolonged working with paints containing methyl alcohol may cause optic atrophy simply by the evaporation of the spirit. In a cabinet-making factory, where methyl alcohol is used almost continually, several workmen were found to suffer from incipient atrophy. The district medical health officer therefore ordered the factory doctor to examine the sight of all workmen every month and report the results to him. Dr. Doifi, chief medical inspector in Budapest, bought bottled liquors in some fifty brandy shops and investigated the specimens as to methyl alcohol content. He found this poisonous substance even in a few of the most expensive liquors. The Hungarian law prohibits the use of methyl alcohol in the preparation of foods, or any substances, medicines or otherwise, intended for internal use. It is hoped that the attention which Doifi's investigation called to the subject will result in a new legislative prohibition of its use in the industries too, or at least the testing of the sight of workmen at regular monthly intervals in industries in which methyl alcohol is indispensable.—(Jour. A. M. A.)

THE OPHTHALMIC RECORD calls attention to a special train operated by the Chicago and Eastern Illinois Railroad, to members of the American Academy of Ophthalmology and Oto-Laryngology. It leaves Chicago at 9:10 P. M. Oct. 24th and arrives in Chattanooga at 3:42 P. M. Oct. 25th. The train will be of the best, including an observation and dining car. It is the quickest, shortest and best route, and it is hoped that many members will thus meet en route. Many Chicago men will be on this train. Return trip tickets sell for \$28.90. One way, \$14.50. Parties of ten or more can purchase tickets for \$12.30 one way. Pullman fare is \$3.50. Write J. F. Goyan, 108 West Adams St. for information.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXII

CHICAGO, NOVEMBER, 1913

No. 11, New Series

ORIGINAL ARTICLES

CATARACT EXTRACTION WITH CONJUNCTIVAL BRIDGE.

BY ROBERT SCOTT LAMB, M. D., WASHINGTON, D. C.

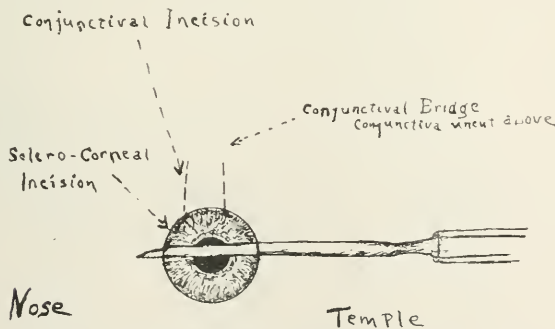
ILLUSTRATED.

Doubtless some one has tried the operative procedure to be described. If so, I have been unable to find a description of it.

After making the corneal section, just as one would do preceding a conjunctival flap, the conjunctiva is cut as if a flap were to be made, except that a portion of the conjunctiva farthest from the cornea which is usually severed is left intact. The bridge should be about 8 or 10 mm. long, and can be completed with scissors, if preferred, after the sclero-corneal incision is made.

The Following Diagram Illustrates the Bridge.

The bridge is raised and an iridectomy up and in is made (I use a Stevens scissors, never deWecker). By way of the



nasal edge of the bridge which is very flexible. Then the capsulotome is passed from the temple side and a circular incision is made in the anterior capsule, near the equator. From the temple side beneath the bridge a wire loop is passed behind the upper edge of the lens as it is tilted forward by pressure on the cornea opposite the lower border of the lens.

By pressure and counter-pressure the lens is easily extracted. The bridge is then lifted on the spatula and the corneal wound is opened sufficiently to allow the introduction of the point of a syringe containing normal salt solution. The anterior chamber is irrigated and usually clears well. The bridge falls naturally into its bed and normal relations of the conjunctiva are re-established. The cornea takes its relative position and because there is no great interruption to the circulation in the bridge healing is even more rapid than in the usual conjunctival flap operation.

As to its advantages, it would seem to me that they would be quite evident to any experienced operator. There is a feeling of security from loss of vitreous even while one is operating. There is no delayed healing, no prolapse of the iris, no obscuring of the field of operation as in the conjunctival flap operation when the flap is turned over the cornea nor the same amount of hemorrhage as is often present in the flap operation, and as an after result the lessened corneal astigmatism is a great advantage.

LID ELEVATOR.

BY W. A. FISHER, M. D., CHICAGO.

ILLUSTRATED.

This elevator, which I have used for nine years, prevents the lid from making pressure upon the eyeball better than any speculum I have ever tried. The lid hook of Col. Henry Smith of Amritsar, India, prevents the lid from pressing upon the



globe when employed by Smith or his pupils but it is conceded that a highly trained assistant is necessary. In our hospitals, where internes are changed at intervals it is impossible to have such an assistant. This may explain why so few operators attempt the removal of the lens in its capsule. I have made a double Smith hook on one end of my lid elevator, and this will easily hold the upper lid away from the eye

even in the hands of an untrained assistant. The lower lid can be held down by the thumb of the assistant's left hand.

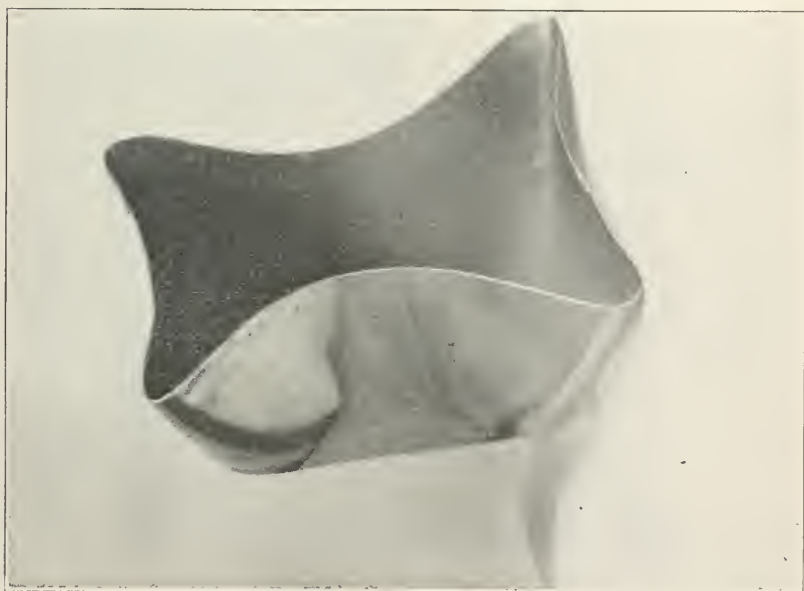
The incision for cataract can be easily made while the lids are held away from the eyeball with this instrument and it is not necessary to move it until the operation has been finished and the eye closed. I believe the incision in all cataract operations should be done with the right hand unless the operator is left handed. If the operator uses his right hand to make the incision when operating on either eye, the assistant can in either case hold the lid elevator in his right hand, standing on the left side of the patient and out of the way of the operator. The assistant in this position can hold the lower lid down with the thumb of his left hand and have a good view of the operative field. This double book is not intended for the intra-capsular operation alone, but for any method of cataract extraction, because a most important thing is to prevent the lids from pressing upon the eyeball.

A NEW IRRIGATION BASIN.

BY I. G. CLARK, M. D., COLUMBUS, OHIO.

ILLUSTRATED.

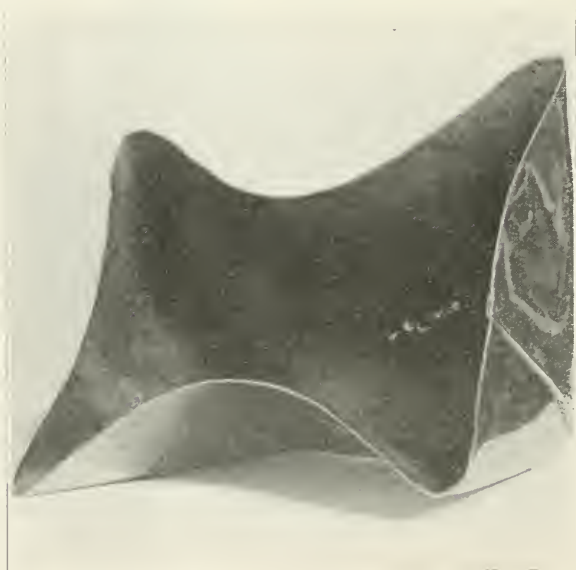
The basin shown in the accompanying illustrations is designed to take care of the large volume of fluid required in



the more extensive flushing of the conjunctival cul-de-sac now practiced in preparation for eye procedures.



This basin is 10 c.m. long, 6 c.m. wide, and 6 c.m. deep. Its four borders represent composites of twenty-five form-



curves of the facial malar region; two vertical and two horizontal—so arranged that the basin will easily fit any face.

The use of mass cotton is mussy and inadequate.

The basin may be used also for the ear region. It has



been in practical use for one year, and may be obtained from Joseph Ferguson, 8 S. Broad St., Philadelphia, Pa.

EXISTENCE AND PREVALENCE OF TRACHOMA AMONG THE INDIANS OF THE NORTHERN UNITED STATES AND CANADA.

BY W. H. HARRISON, M. D., BROWNING, MONTANA.

To all those familiar with health conditions among the Indians of the United States, it is a well known fact, that

trachoma exists among them to such an extent as to constitute practically an epidemic.

In my several years' service for the United States government, investigating and treating trachoma among these people in most of the states west of the Mississippi river, I have found but one small band of Indians, numbering 346, wholly free from this malady, and these are a fragment of the great Chipewa tribe scattered along the north shore of Lake Superior from Duluth, Minn., to Port Arthur, Canada, a distance of more than 200 miles. Other groups of this same tribe, numbering several thousand, live on the White Earth, Red Lake and Leach Lake Reservations in northern Minnesota, and are afflicted with trachoma to an alarming extent. I am unable to account for the absolute immunity enjoyed by the Chipewas living on the north shore of Lake Superior, when the members of the same tribe, living further inland, are so badly afflicted. The proximity of these people to Lake Superior, with its opportunities for cleanliness, will not explain this difference, as all the bands of this tribe live on large lakes and can and do enjoy the same opportunities for keeping clean as those who live along the shore of Lake Superior.

During an official investigation of health conditions along this north shore region, I visited a Canadian Indian Reservation located near Fort William, Ontario, and examined the eyes of a great many Indians belonging thereto with the result that not a single case of trachoma was found among them.

Dr. Frank B. Eaton, in an article entitled "A Theory of the Etiology, Prevention, Treatment and Cure of Trachoma" in the August, 1910, number of the *Ophthalmic Record*, says, "Dr. Foucher of Montreal, and six specialists (oculists) consulted by him, have not observed a single case of trachoma among the Indians of Canada." In the same article Chibret is quoted as concluding, after a supposed adequate investigation, that the Canadian Indians possess an absolute immunity against trachoma.

Since visiting the Indian Reservation near Fort William, Canada, my duties have taken me westward through Minnesota, North Dakota and Montana, almost to the Idaho line, and at nearly all the reservations visited in these states I have met Canadian Indians temporarily at these places visiting and an examination of them has shown that an unusually large percentage of such Indians have trachoma.

On the Blackfeet Reservation where I am now working I have examined some Bloods, Crees, and Blackfeet Indians from Canada, and have found a larger percentage of these afflicted with trachoma than the Indians of the United States. Several of these Canadian Indians have had trachoma so long and severely that they are practically blind from entropion, and for the relief of some of these foreign unfortunates I have instituted the necessary treatment.

Dr. Oliver C. Edwards of Macleod, Alberta, physician for the Canadian Government to the Blood Indians, in a personal communication to me says, "I have had to do medically with different tribes of Indians in this broad Northwest, from this point, 80 miles from the United States line, to the Great Slave Lake on the north, and from the boundary of Manitoba to the Rocky Mountains, and wherever I have gone I found trachoma in some degree, present." Dr. Edwards' experience among these Indians extends from 1882 to the present time.

REPORT OF A CASE OF SARCOMA OF THE ORBIT.

BY CLARENCE EDWARD IDE, M. D., LOS ANGELES, CALIF.

In 1908 a child less than a year old who was suffering from exophthalmos was referred to the writer by Dr. Whitmore, of Tucson, Arizona.

The parents reported that the child had fallen, a few days before, from its high chair striking the right "temple" on the edge of a stove. The lids were oedematous, the eyeball protruding and fixed, and the conjunctiva was infected.

On the supposition that a fracture into the orbit had resulted in hemorrhage behind the globe, or at least that a serous exudate was causing protrusion of the eyeball, the orbit was drained above the globe clear to the apex. But this procedure failed to ameliorate the condition of the infant. The conjunctiva was chemotic and the cornea steamy.

Three days later the Krönlein operation was performed. As soon as the orbit was entered, a soft pulpy mass, which bled excessively when touched, was found behind the globe and extending down into the antrum. This mass was a sarcoma. The condition of the child was so serious that no attempt was made to cope with the condition. It looked hopeless, so the wound was closed.

After a few days more the globe was enucleated, as the exophthalmos had increased to such an extent that the chemotic

conjunctiva was protruding between the lids and the cornea was breaking down. This was not done with any hope of saving the child, but rather to improve her appearance for the parents' sake. After a week the child died. History of case from time of fall, less than one month.

The picture presented by this case previous to death was a perfect duplicate of the illustration which is given in de Schweinitz's "Diseases of the Eye," as that of a typical sarcoma of the orbit.

This sarcoma involved the orbit, antrum and subcutaneous tissues on the temporal side of the orbit and the parts over the zygoma.

ORBITAL AND OCULAR NEURALGIA DUE TO DENTAL IRRITATION.

BY H. V. WÜRDEMANN, M. D., SEATTLE, WASHINGTON.

There have recently appeared four articles concerning the relation of the teeth to the eyes: Two by Wm. Evans Bruner of Cleveland, Ohio, (*Ann. Ophth.*, Oct. 1912 and *Ohio State Medical Journ.*, Jan. 1913), one by Polet of Belgium, (*Belg. Annals Stomatology*, Nov. 1912), and one by A. Edward Davis of New York, (*Ophthalmology* Oct. 1913), which called to mind my usual routine examination of any patient complaining of ocular or aural pain. I never forget the command of the Viennese Gastrointestinal specialist, Prof. Dr. Oser, "Zeig mir dein Gebiss!" in all head cases and invariably examined the mouth and teeth of such patients. Certainly this routine has proved of value in many cases of aural neuralgia and occasionally in eye cases. It always gives an inkling as to the previous condition of health and as to the personal care of the patient.

A marked example of such in eye work was the following:

G. B. S., aged 36, of Racine, Wis. General repair agent for an automobile concern; referred to me by Dr. Breckenridge of Racine. He came to Seattle March 24th, 1913, with the history of severe pain back of the right eye for over a year, with incidental history of slight trauma and childhood diseases of no particular moment. He however had never seen well with the right eye and it had been operated upon for external strabismus by Dr. Hall of Chicago and Dr. Chisholm of Baltimore with present good cosmetic results.

Examination generally showed a physically healthy man. The vision of the right eye equalled seeing large objects, but had never been better: probably due to amblyopia ex anopsia, as the fundus was absolutely normal. The refraction was $+ .25$, 145° . The left eye had a somewhat congested nerve head, the vision was $6/v1 - 2$ and the visual field somewhat contracted. Refraction was $+ .25 \subset + .25$, 165° .

The patient complained bitterly of the pain back of his good eye, a distress which had existed for about a year, and which he had either been told or had imagined might be due to a tumor back of the eye. During the routine examination I looked at his mouth and found several gold capped teeth. The left upper second molar was sensitive to tapping. The patient volunteered the information that that tooth had been capped and uncapped several times by different dentists during the last year, and that he had had "quite a time" with it, and that when the cap was off, the eye was free from pain. Thereupon, before submitting him to laboratory examination, etc., I took him to a dentist, Dr. Fiset, of Seattle, who recommended that the tooth be extracted. This was done, and a dental spud was found extruding from posterior root about $1/6$ inch. The patient returned that afternoon, saying that his eye was free from pain. I told him that he probably had so much pain in his jaw from the extraction that he had forgotten about the eye pain.

He said, "no" he was "cured."

The next day he said that he was well and wanted to go to Los Angeles. I told him to wait a couple of days, but the next day he appeared saying, "Got my ticket. I am well."

The vision was then full $6/v1$ in the left eye, and the blurring had disappeared. The visual field was likewise nearly normal in extent.

EXAMINATION FOR DEGREE OF DOCTOR OF OPHTHALMOLOGY.

The following questions constituted the written examination for the degree of Doctor of Ophthalmology at the University of Colorado in August of the present year:

1. Describe the meridional section of the anterior segment of the eyeball giving, by diagrams and figures, exact relations and dimensions of the parts.

2. Describe the course of the rays of an incident pencil in regular astigmatism; and give the five possible relations of the retina to them.

3. Describe a case of squint for which you would operate, give reasons for operating, what operation you would choose, and reasons for choice.

4. In a case of redness and pain of the eye and photophobia, name five different conditions to which it might be due and give the reasons deciding in favor of or against one of them, the appropriate treatment and prognosis.

5. In case of supposed sudden blindness of one eye give three possible causes; with further symptoms which would decide which was the cause, and indicate what would be the appropriate treatment for each.

6. Describe three different forms or kinds of toxic amblyopias, and give the prognosis for each.

7. In a case of intraocular tumor composed chiefly of small round cells, what different kinds of tumor might it be; and by what appearance or facts of the history would you determine which it was?

8. Give three causes of exophthalmos, the differential diagnosis between them and the treatment for each.

9. If a patient came with the history of having been struck in the eye by a flying object, how would you ascertain the nature of the injury sustained? Give the first treatment for three different kinds of injury.

10. Describe briefly ocular manifestations of tuberculosis.

In addition to these there was a clinical examination, an oral test and an examination of three microscopic slides. Those who passed this examination will be required to present theses, and will be eligible to receive the degree at the next commencement.

In the reorganized College of Medicine of the University of Illinois—formerly the College of Physicians and Surgeons, Chicago—the following compose the teaching staff of the Department of Ophthalmology: Casey A. Wood, Professor of Ophthalmology and Head of the Department; Wm. E. Gamble, Associate Professor of Clinical Ophthalmology; J. B. Loring and E. K. Findlay, Assistant Professors. Instructors: Charles C. Clement, Frederick D. Vreeland, Lawrence W. Whitner, Georgiana Dvorak-Theobald, Herbert Walker and Marie A. Motis.

REPORTS OF SOCIETIES.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF MARCH 4, 1913.

DR. WILLIAM ZENTMAYER, CHAIRMAN, PRESIDING.

The X-Ray as an Aid in the Diagnosis of Diseases of the Eye.

Dr. Henry K. Pancoast, by invitation, summarized the subject of the x-ray diagnosis in connection with diseases of the eye and orbit, for convenience, in the following manner:

1. The diagnosis of tumors in the region of the optic chiasm, and affecting the pituitary or posterior sinuses. The diagnosis must depend upon bony changes, either absorption by pressure or direct involvement, or the distorting effects of pressure. In the case of sinuses, it may also depend upon shadows obliterating the normal translucency.

2. The detection of tumors on the orbit or anterior sinuses depends upon similar bony changes or shadows obliterating the normal translucency of the sinuses.

3. In tumors involving other portions of the cranial cavity, the diagnosis can be made in only a comparatively small percentage of cases, and must depend upon pressure effects upon the bone or the results of pressure on the venous channels, except in rare instances in which a growth has become more or less calcified.

4. In disease of the posterior sinuses, the diagnosis of posterior ethmoid disease must depend almost entirely upon the lateral stereoscopic view, and in sphenoid disease, the posterior-anterior view is also essential in order to determine unilateral or bilateral disease especially. Oblique lateral views and views from above downward may be of assistance. The diagnosis is far more difficult than in anterior sinus disease.

5. Disease of the anterior sinuses is comparatively easy to determine and is uniformly reliable, and needs no special mention.

6. Bone disease of the orbit or sinuses can be determined by the appearance of bony destruction or new bone formation.

A clinical knowledge of the case is always essential for best results.

Dr. Posey expressed his appreciation of the aid the x-rays

may give the ophthalmologist in the diagnosis of obscure conditions in the orbit and neighboring sinuses, but referred particularly to their value in the lesions affecting the chiasm. The technique had improved so greatly in recent months in operation upon that region, that ophthalmologists should avail themselves of every means to insure a correct diagnosis in this class of cases, for it was probable that early operation would in many cases, prevent blindness later. He had been disappointed in the vague character of the report which he had obtained from the x-rayologist in many chiasmal conditions, but believed that when the visual fields were being more and more compromised that operation should be essayed even if there were no definite positive shadows.

Dr. Zentmayer said that because of the obscurity of the patho-genesis of pigmentary retinitis he had Dr. Leonard make a radiograph of a recent case seen at the Polyclinic, with a view of determining whether there were any changes indicating disease in the pituitary body. They did show some enlargement of the sella turcica and the boy was consequently placed upon thyroid extract, but it is too recent to expect any results.

In a case of suspected intraorbital tumor, Dr. Manges made a radio-graph which showed a depression of the roof of the orbit which he concluded was the result either of an anatomical condition or of a tumor in the anterior lobe of the brain. Later choked disc appeared in the fellow eye. An operation was done for the purpose of exenterating the orbit but no primary growth was found. There was apparently an invasion of the orbit from the brain. At the same time, the sphenoidal cells, which were also involved, were curetted by a rhinologist. Immediately after the operation, the patient developed hyperpyrexia and died within seven hours of the operation. No autopsy was obtained.

Gonorrhoeal Metastatic Keratitis.

Dr. Irvine F. P. Turner, by invitation, presented the case of a colored man, aged 22 years, who applied to him for treatment on January 13, 1913, complaining of an inflamed and painful eye. The condition had persisted for one month and was similar to an attack six months previous. The patient has suffered from an attack of gonorrhoea in June, 1912, but aside from this, he had always been in good health. Family history was negative. Upon examination of the right eye, the cornea

showed numerous circumscribed areas of infiltration around the periphery and in the center of a diffuse superficial punctate keratitis, grayish white in appearance. There was a slight ciliary flush, but the iris was not involved. Vision, 6/12. The Von Pirquet and Wasserman reactions were negative as was also the bacteriological examination of the conjunctival secretions. Under appropriate treatment the ciliary irritation subsided but the corneal condition remained unchanged.

Dr. Posey said that he had seen but two cases due to metastatic gonorrhea. The first occurred in a young man who had acquired gonorrhea shortly after the ocular inflammation appeared. Gonococci were found in the urethral secretion and also in a smear taken from the inflamed cornea. There had been no arthritic inflammation or acute conjunctival inflammation. The keratitis was vesicular in type. The second case occurred in association with an attack of conjunctivitis and iritis of metastatic gonorrheal origin in a young man the subject of multiple arthritis and took the form of a superficial punctate keratitis.

Dr. Posey cited the monograph of Byers and said that this author had reported nine cases of corneal disease which were probably metastatic in nature. Of these, the substantia propria of the cornea was affected in two instances; in five, the inflammation was confined to the epithelial structures. In all seven cases, the ulceration affected the central portion of the cornea. Both eyes are usually affected, though in a series of 12 cases, 5 were unilateral. Dr. Posey expressed himself as still unconvinced of the definite value of anti-gonorrheal bacterines and sera in the treatment of this class of cases.

Trichiasis Cured by the Spencer-Watson Operation.

Dr. William Campbell Posey exhibited a case of trichiasis cured by the Spencer-Watson operation. The case was one of old trachoma, but as the tarsus had been but little affected, Dr. Posey had chosen the method of procedure mentioned in the title, in preference to the Hotz or other operation which included an incision of the tarsus as a necessary step in the technique. Dr. Posey said that he had performed the Spencer-Watson operation in several cases and preferred the simple and ingenious transplantation of the ciliary border which it effected to any other manner of removing the irritating row of hair follicles.

Magnet Extraction of a Foreign Body from the Orbit.

Dr. Burton Chance presented three cases of congenital

removed a fragment of steel from the apex of the orbit by means of the magnet. The foreign body had passed through the nasal portion of the eye, the point of entrance being 5 mm. from the limbus, that of exit some 10 mm. more posteriorly, and had lodged in the sheath of the nerve some 5 mm behind the globe. Removal of the foreign body was attended with some difficulty, division of the internal rectus muscle being necessitated before the fragment of steel could be disengaged from Tenon's capsule. Healing had been prompt and notwithstanding the disintegration of the coats of the eye to the nasal side which had been occasioned by the passage of the foreign body, vision equalled 5/9.

Optic Atrophy Following Traumatism.

Dr. Frank C. Parker presented a patient who had applied at the Wills Hospital on January 25, 1913, for treatment following the loss of vision in the left eye subsequent to an injury two months prior. While walking along the railroad he was struck by a train which threw him heavily upon his right hip, at the same time striking his shoulder at the outer, upper orbital rim with such force that he was rendered unconscious. This comatose state lasted three days. In the meantime, six stitches were taken in the skin covering the orbital injury.

Upon regaining consciousness at the termination of three days, the patient could not detect the light of a candle held directly before his left eye. Frequent tests for light perception were made by the physician in charge but not until after the fourth day following the injury could the patient detect light. Vision then gradually improved until two weeks later objects could be dimly seen and according to the patient's statements, he thinks there has been continued improvement.

At the time of the injury, there was bleeding at the ears, nose and mouth. External examination showed a well-marked scar over the upper, outer orbital rim. The corneae are clear, the pupils $2\frac{1}{2}$ mm. in size, the right eye reacting promptly to light, accommodation and convergence, while the pupillary reaction in the left eye is absent save for a consensual reaction which is prompt. Ocular movements in all directions are good.

Ophthalmoscopic examination showed the right fundus to be normal, but in the left there was a well defined simple optic atrophy. The visual fields showed a marked contraction in the left eye.

From the nature of the bleeding, with its associated bleeding from the ears, nose and mouth, and the accompanying unconsciousness, there was present undoubtedly a fracture of the skull. As the consensual reaction of the pupil of the affected eye was not interfered with, the lesion causing pressure upon the optic nerve must necessarily have been anterior to the decussation of the fibres in the chiasm. Consequently, it would be safe to assume as the causative factor in the production of this optic atrophy a fracture of the orbital walls near the apex, producing direct pressure upon the nerve at the optic foramen, or a hemorrhage or extravasation or both. From the fact that vision improved somewhat the absorption of an extravasation or hemorrhage would account for this, but as nerve shows a decided atrophy, there would be every reason to assume pressure upon the optic nerve by a fragment of bone as it passes through the optic foramen.

Dr. Posey drew attention to the necessity of conservation in prognosis after monocular loss of vision following head injuries, as in many cases, such as the one just cited, there was no actual break in the continuity of the optic nerve fibres, their function being depressed only for a time in consequence of the pressure of blood or inflammatory exudate. Sudden and complete blindness usually indicates severance of the nerve, loss of sight coming on gradually and some time after the accident being the more favorable condition.

Dr. Zentmayer said that many theories had been advanced to explain the frequency with which periorbital blows were followed by optic atrophy, but about 20 years ago a series of experiments were made which showed that the resultant of the forces was in a line that led to fracture at the foramen opticum. Dr. Zentmayer asked Dr. Pancoast whether a radiograph would be able to show this in a living subject.

J. MILTON GRISCOM, M. D.

Secretary.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF APRIL 7, 1913.

DR. S. LEWIS ZIEGLER, CHAIRMAN, PRESIDING.

Tuberculous Keratitis.

Dr. Samuel D. Risley presented two cases of keratitis which had proved rebellious to all the usual methods of treatment at his own and other clinics. He called attention to the

fact that in each case the pupils had not dilated under repeated instillations of atropine; that there had been excessive photophobia notwithstanding the fact that the corneal epithelium was intact. There was deep ciliary injection and tenderness to palpation which he regarded as suggesting a general uveal disease. There were also several small gray, nearly circular islets or nests of infection, showing a dense center and a fainter gray border or halo—these were apparently situated on the membrane of Descemet or between it and the stroma of the cornea. This peculiar distribution together with general ill health of the patients suggested to him a probable tubercular infection. The Von Pirquet test was positive in both; in one case, the reaction being so marked that it suggested the early stage of a vaccination and was accompanied by a rise of temperature. There was no pulmonary involvement demonstrable. Tuberculin injections were then instituted resulting in a rapid and marked improvement in the ocular conditions.

Dr. Posey thought Dr. Risley's case was typical of tubercular keratitis. He said that in his experience the projection of a tongue-like area of yellowish-white infiltrate from the limbus into the interstitial lamellae of the cornea towards its centre and the occurrence of discreet yellowish white oval areas, which appear caseous and avascular, is very significant of tubercular keratitis while he had observed the deposition of small rounded areas resembling drops of cold mutton fat upon the posterior surface of the cornea or in the lamellae of the cornea, secondary to tubercle of the iris and of the deeper parts of the eye. According to Michel, the typical picture of tubercular interstitial keratitis is almost always preceded by the formation of tubercular nodules in the pectinate ligament, the corneal involvement appearing secondarily. Bach, however, is of the opinion that tubercular nodules may be found primarily in the periphery of the cornea.

The treatment of tubercular keratitis is, as might be supposed, often unsatisfactory. Expectant measures are usually the safest and wisest, though the employment of tuberculin has often been of undoubted value. The observations of Gamble and Brown of Chicago; of Von Hippel of Goettigen, and of many others, attest this. Von Hippel insists upon the propriety of small doses (a beginning one of $1/500$ milligram) as in a few cases $1/50$ milligram has produced marked local reaction. In his opinion, sub-conjunctival injections should be

discountenanced, and Old Tuberculin to confirm the diagnosis before beginning the treatment with tuberculin T. R. is recommended. Under the tuberculin treatment, Von Hippel has found that the general health of the patients improved in almost all cases; enlargement of the spleen and lymph glands disappearing, and the body weight increasing.

Dr. Burton Chance said that he had been impressed by the remark that the patients had shown decided improvement in their general health almost from the very start in the courses of the tuberculin treatment. He believes it has been the experience of all ophthalmologists who have administered tuberculin-sera, to find long before the ocular symptoms had begun to regress that the patients gained in weight and showed many evidences of improved nutrition.

He recalled a case of his own in a lady who had had inflamed eyes from her early childhood, to such an extent that the cornea of one eye is entirely leucomatous while the other eye shows several nebulæ. At the time she came under his observation, about two years ago, there were the symptoms of profound anemia and emaciation. It was the opinion of others concerned in her case that there were no signs of pulmonary disease, and he, himself, believed that the patient's glandular system chiefly was involved. During the first course of tuberculin injections, not only were the corneal symptoms allayed, but enlarged cervical and submaxillary glands became softer and reduced in size while the patient's weight rapidly increased.

In the discussion on the results of tuberculin in chronic ambulatory tuberculosis, at the College of Physicians, toward the end of last year, the remarks of the Chairman were of particular interest. Dr. de Schweinitz said while the general practitioner could not accord this form of treatment, the place it was hoped at first it might attain, the ophthalmologists could attest to the great value of this therapeutic agent in tuberculosis lesions of the eye because it had been amply demonstrated that such lesions have yielded more readily to tuberculin than they had under other and older measures.

Therefore, the ophthalmologists have the opportunity to render a valuable contribution to the subject of tuberculosis, and this contribution ought to have the respect of those occupied in this very important branch of medicine.

Some Interesting Cataract Cases.

Dr. Burton Chance presented three cases of congenital

cataract which have been under observation in Dr. Schwenk's clinic in the past month. The first was of a vigorous man of 22 years in whose left lens were fine punctuate opacities in the anterior cortex and in the posterior cortex at the pole was a rather large opacity, shell shaped, within the serrated edges of which were well defined granules. The vitreous was perfectly clear and the fundus healthy. The visual acuity equalled $\frac{6}{22}$ by special tests, but in practical experience, the sight was worse because the opacity obscured the pupillary space. The sight had been poor for a long time yet without any known cause. He had been told several years ago that he had a cataract in his eye. For three or four years, the man has been a pugilist but he declared his sight was poor prior to his boxing bouts.

The second case was that of a young Swiss cloth finisher of 23, who had been myopic all his life but had recently lost his sight so that he could not work. His eyes were widely divergent. There was, of course, perception and projection, but it was not possible to obtain the exact visual acuity. In the posterior cortex of the right lens was a well marked stellate opacity, extending far out in all diameters through the points of which the unusually well preserved fundus for so great a degree of myopia, could be seen. The left lens contained more diffused opacities, which were less dense than in the right. The special point about this case was the development of cataracts in what might be considered to be an intense or malignant myopia. It is Dr. Schwenk's intention to remove the lenses with the prospect of reducing the myopia.

The third case presented in each eye a small dense disk in the posterior cortex directly at the axis; that of the right was almost the size of a pin head, and that of the left about 4mm. The smaller was quite dense; the other had a granular edge or border. In the anterior cortices were numerous fine vacuoles. The eyes in other respects were healthy. V. R. $\frac{6}{45}$. L. $\frac{4}{45}$. The man was a baker, aged 40 years. He believes his sight was good until two years ago, when on recovering from heat prostration he noticed a marked reduction in each eye. He began to use glasses only a few months ago. In complete mydriasis the visual acuity is almost normal.

Dr. Risley said that posterior capsular opacities of the lens were one of the most annoying problems for the ophthalmic surgeon. In his own practice, he had not seen any satis-

factory improvement in vision from iridectomy for visual purposes. His procedure of late years had been a preliminary iridectomy to be followed in due time by a vertical slit in the capsule without cutting into the lens cortex. Two days later the lens was extracted. He had pursued this method in six cases during the past year at the Wills Hospital and one in private practice. In only one of these was there any reason to think that the delay of forty-eight hours between the capsulotomy and extraction was too long because of swelling of the lens cortex. In one instance, instead of extraction after the usual corneal section the soft lens was evacuated by expression, the section being made by a keratome, the point of which was carried into the substance of the lens, then slowly withdrawn and slight pressure backward made with the blade and the soft masses of cortex allowed to escape over the inclined front surface of the keratome. This procedure of course, left the opaque posterior capsule undisturbed and required a subsequent capsulotomy.

He thought, however, that any method for the management of posterior polar or capsular cataracts was incomplete which left out of consideration the fact that they were the result of more or less serious uveal disease often associated with systemic affections, or as in one of the cases presented at this meeting, that of the blacksmith due to exposure to heat or light at the furnace or forge. These conditions should be subjected to treatment before any operative procedure is undertaken.

Dr. McCluney Radcliffe reported a case of congenital posterior capsular cataract with a triangular shaped opacity in each eye the centers of the triangles being comparatively clear. The patient had compound hypermetropic astigmatism and with proper correction his vision was 20/20 partly. He is a college student and is able to do his work with comparative comfort. His father is said to have congenital hexagonal cataracts with 4/7 normal vision.

Dr. George S. Crampton referred to a case of triangular congenital cataract which he exhibited elsewhere two years ago. It was afterwards discovered that this nine year old boy was the son of deaf mutes who were not blood relatives. In the centre of each lens, there was a circular, film-like cataract about 6mm. in diameter, composed apparently of very minute dots. These formed a symmetrical triangle, base up, within the circular area, the stippling becoming so attenuated towards the

centre that through it practically 6/6 vision was obtained with glasses to correct the slight amount of compound hyperopic astigmatism. The uncorrected vision was 6/9 and 6/12 in right and left eye respectively. The eyes of his mother and sister were free from cataracts, and all other members of the family were said to have good eyes, although as they lived a distance they could not be examined.

Dr. William Zentmayer presented the case of a male, aged 40 years, who had been operated upon by Dr. Zentmayer, three years ago, for cataract, in the right eye. At that time, there was a hypermature cataract in the left eye. This was not interfered with because the eye was strongly convergent and light projection was faulty. The operated eye secured a vision of 6/12. He states that the sight of the left eye has been improved of late whereas that of the right eye has failed. He recalls having received a slight blow on the left brow just previous to the time when improvement began in the left eye. In the right eye, there is a regular coloboma, clear pupil and a detachment of the retina below. In the left eye, there is an apron of capsule floating in the upper half of the pupillary space. The remainder of the pupil is clear. No trace of the lens. Vision in each eye equals counting fingers at about 1 M.

J. MILTON GRISCOM, M.D.,

Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Monday, April 21, 1913.

The President, DR. WILLIS O. NANCE, in the Chair.

A Case of Primary Sarcoma of the Cornea.

L. W. Dean: Three months before being seen April 24, 1912, the patient, a woman aged 63, noticed a brownish flat growth in the cornea of the right eye, which had increased somewhat in thickness. There was no pain but vision failed rapidly. The tumor apparently grew from the anterior surface, was of light rust color, very vascular, 5 mm. in vertical and transverse diameters and the apex 2 mm. above the surface. It occupied the central portion of the upper half, extending a little below the median line, but having above 1 mm. of clear corneal tissue, traversed by numerous blood vessels. The tumor was enucleated April 26, 1912. Microscopically the tumor was found by Prof. Henry Albert to be a cellular mass of tissue, not covered by epithelium, but overlapped at

the edges by the epithelium of the cornea. It was well defined from the corneal tissue but there was nothing to suggest capsule formation. The corneal epithelium was absent beneath, but Bowman's membrane was intact except in the center and the substantia propria at this point was slightly infiltrated by the tumor. The cells were large, round or oval, oat-shaped and some slightly spindle-shaped, with mitotic figures numerous, and a few cells containing finely granular yellowish pigment suggesting melanotic sarcoma. Blood vessels were numerous, and were surrounded by small lymphocytes. Collagen intercellular fibrils were shown by Van Gieson's and Mallory's stains; fibroglia fibrils were also present. Diagnosis, sarcoma, originating entirely from the cornea, probably from the superficial layers of the substantia propria.

Dr. Derrick T. Vail, Cincinnati, reported a case in which a diagnosis of melano-sarcoma of the cornea had been made by the junior ophthalmologist in the Cincinnati Hospital, Dr. Wooley. Dr. Vail had diagnosed it as a soft fibroma. The anterior elastic membrane of the cornea was not invaded: it was a purely epithelial growth and seemed to spring from the usual site of a pterygium. It had extended entirely across the pupillary area and the pupil could only be seen by looking obliquely under the tumor mass, which was fungoid and dark in color and was easily stripped from the cornea. It is now nine months since the tumor was removed and the cornea is perfectly clear, with no evidence of return and no scar.

Dr. J. E. Colburn reported a case in which he removed what was supposed to be a pterygium from the inner canthus. In a few months it had returned and covered an area three times its original size. It was removed again and in about six months the patient had an irregular swastika-shaped tumor over five-sixths of the entire cornea. It was determined after its first removal that it was a melano-sarcoma. It was removed with a white-hot electric needle or curet, going over the entire surface of the cornea and burning it quite deeply. Recovery was uneventful and prompt. It was removed ten years ago and the patient, a physician, was seen a few weeks previously, when that eye gave the best vision and there was no scar on the cornea. The method was suggested by an operation in Dr. Greenleaf's clinic in New York.

Dr. C. H. Francis said the question to decide is whether the growth is malignant. From the morphological appear-

ance it is impossible to determine the origin of the cells. They are epithelial cells smaller in type and simpler than the epithelial cells proliferating in carcinoma. Many of them show that they are not undergoing differentiation and the question is as to their origin. Von Recklinghausen would say they are epithelial in origin, and Unna would pronounce it a nevus in the conjunctiva. He claims to have found that the outlying foci show connection with the surface epithelium, and in opposition to Von Recklinghausen's theory most of these cells are arranged vertically and not horizontally, as they would be if they rose from the lymphatics. Ribbert, on the other hand, claims they originate from the connective tissue cells. All these questions are important to determine in pigmented nevi that show proliferation. If we follow Unna, it is a carcinoma. If Ribbert's theory is right they must be classed with the sarcomata. This case shows the connective tissue cells proliferating, but they are in the same horizontal meridian as the blood vessels and may have originated from the vessels. We know, too, that epibulbar carcinoma and sarcoma are both very vascular. Labor and Parsons believe that when a nevus cell becomes malignant it is carcinoma. On the other hand, Fuchs says without reservation that if a nevus cell becomes malignant it always develops into a sarcoma.

Dr. Oliver Tydings referred to a case reported by him to the Mississippi Valley Medical Association in 1894 in a man 75 years old. He advised removal of the growth on the cornea. As he couldn't guarantee the integrity of the globe after removal, operation was refused. Three or four months afterward the patient came back with a large and painful ulcer, which wasn't very vacular. It was dissected out and sent to the Columbus Laboratory, where it was reported to be a melano-sarcoma, not very vascular. He did not report that as a primary sarcoma of the cornea, a neoplasm which he believes is very rare. He had hunted up the literature and at that time could find no report of a case in this country. A few cases were reported by Parsons, all foreign, some questionable. It was reported by him as a sarcoma of the anterior segment of the globe. Fifty years before, the man had got a wheat beard in the eye and had had a sore eye for a long time. There was one spot which Dr. Tydings did not succeed in removing. He believed the man had suffered a perforation of the cornea and iris prolapse and later this

growth had started. The cornea was clear all around. Vision three years ago, five or six years after removal, was 20/20. There had been no recurrence.

Dr. L. W. Dean emphasized the fact that the tumor at its nearest point was separated 1 to 1.5 mm. from the sclero-corneal junction. It was removed a year ago. As Dr. Tydings has said, primary sarcoma of the cornea is exceedingly rare, and consequently Professor Albert was careful before making a definite report on the structure of the tumor.

Conical Cornea.

Dr. J. R. Hoffman reported a case of conical cornea complicated by an ulcer of the right cornea in a girl aged 15, who had had bulging of the right cornea for several years. June 14, 1910, it began to be inflamed. Examination shows large cone of right cornea protruding between lids and a large deep ulcer of the apex of cone with Descemet's membrane presenting. Left cornea moderately conical. R. V. perception. L. V. 20/200 with no improvement with lenses. Right eye atropinized and ulcer cauterized with galvanic cautery. Pressure bandage and atropine instilled. June 29, 1910, when ulcer still being unhealed, used galvanic cautery again. July 14, 1910, ulcer healed, cornea markedly flatter. Ordered dionin, 5 per cent., twice daily, continued atropine, leaving off bandage. Continued dionin in increasing strength until patient was using 20 per cent. ointment at home every other day and powder in the clinic once a week. Atropine 1 per cent. until Sept. 13, 1910, when inflammatory signs and tenderness had disappeared. Vision at that date was R. 20/200, L. 20/200, no improvement with lenses. Opacity of cornea steadily decreased from at least 8 mm. in diameter to present size, till about a year ago since when it has remained stationary. At present time, R. V. 20/200, L. V. 20/200, no improvement.

In a case of dislocation of the lens reported by Dr. Lloyd, his method of getting the lens into the anterior chamber was interesting. The lens had been dislocated and had gone back into the vitreous. He had the patient in the hospital on his face with the hope that the lens would come into the anterior chamber, without effect. He then had the patient make a number of forward quick bowing movements which brought the lens into the anterior chamber, from which it was extracted.

A case of vernal ophthalmia in a young man he had hoped

to have the members see. He was 30 years of age and had had the trouble for several years, beginning at Los Angeles and while he lived at San Francisco, New York, Boston and Philadelphia and after he came to Chicago, the trouble finally becoming constant. There was no corneal involvement, but it presented a typical appearance of vernal catarrh of the lid. He wanted some hints as to the treatment.

Dr. Oliver Tydings, referring to conical cornea, reported the case of a patient some years previously with injury to the cornea which under the slightest provocation would rupture. In that case he tried an elastic bandage, the patient at first wearing it all the time, with a small pad underneath, and for about eighteen months at night only. This condition had been existing for five years and constantly recurred. Several years after this treatment there had been no new rupture of the cornea. He certainly would resort to that treatment before adopting anything more heroic.

Ectropion of Lower Lid.

Dr. Frank Brawley reported for Dr. Frank Allport a case operated on by the latter for extensive ectropion of the lower lid. The operation consisted in taking a long flap from the temporal region, leaving it attached by a pedicle, and swinging it to the lower lid, which had been prepared beforehand. An incision was made just below the lid margin, the lid raised and the flap sewed into this open space left by the incision. On one side the tip of the flap sloughed and the result was not quite as perfect as on the other side. The man was suffering from a deeply injected conjunctiva from the exposure, and corneal ulcers. He is now able to close the eye, and Dr. Allport proposes to raise the lid still further, and do a blepharoplasty on the left eye where, at the outer canthus, the closure is not complete.

Corneal Microscope.

Dr. H. S. Gradle exhibited a corneal microscope which had been constructed from the tubes of an ordinary ophthalmometer. The ophthalmometer is essentially a telescope or microscope with a pair of birefringent prisms. The conical tube shown contains the prism and the objective. This is pulled out and another tube without the prisms is substituted for it. The ordinary high power loupe is rather insufficient to examine the cornea and the anterior aspects of the eye because of insufficient illumination. With the modifica-

tion of the apparatus as described all that is necessary is to add a lighting apparatus. With an 8 candlepower light from an ordinary circuit, anything from direct illumination to completely oblique illumination can be obtained. The instrument is a diagnostic instrument. One cannot work around the shield of the ophthalmometer, but the instrument can be used for the diagnosis of conditions of the cornea, anything in the anterior chamber, iris, conjunctiva, sclera or anterior surface of the lens. This will give about ten diameters of magnification. An attempt is being made to increase the magnification, but it is not satisfactory yet. It can be attached to any ophthalmometer based on Schiötz's method.

Indications and Contra-Indications for Vaccine Therapy.

Dr. Adolph Gehrman read by invitation a paper on the "Indications and Contra-Indications for Vaccine Therapy." A vaccine is an attenuated virus that will produce a mild infection, but enough to protect. It may be attenuated in many ways, but it remains a virus as long as it is alive. The preparations usually used are not true vaccines, but constitute a toxin therapy that is of most variable character. The principle involved is the stimulation of natural resistant activities by which invading bacteria are overcome. Two possible conditions obtain—where the parasite is slowly invading and immunity is not being developed fast enough to stop its advance, and second, where the tissues have become accustomed to the presence of the parasite and are only moderately disturbed, not sufficiently to discharge the parasite. Vaccine therapy differs from vaccination, in that it is apparently adding to the infection. Vaccination is of no value after infection is begun, but vaccine therapy is useful where the infection with a mild parasite has become subacute, where the infection is on the surface and has not become completely discharged, and where the infection recurs because of a short immunization period. Toleration may be established, in which state the host is not sufficiently stimulated to dispose of the parasite. Mixed infection usually ensues, with final recovery owing to overgrowth of one species, until finally saprophytes remain, to be finally discharged. In surface infection absorption of toxins is slow and antigens do not reach the circulation, and sufficient resistance is not stimulated until vaccines are given. Short immunity is due to low opsonic index, which may rise but falls again with recurrence. Shotgun methods

should not be used, but a bacteriologic diagnosis should be made so that the system may not have to destroy unnecessary toxins. To an extent the procedure is specific, but not absolutely so. Cases should be selected by the rate of advance of the infection, the degree of reaction to the infection and the stage to which it has advanced. Applied early in slowly increasing invasions, rapid abortion of the attack may be induced. The application is indicated when the patient is not reacting against the infection. In recurring infections the short immunity period may be extended by vaccines, as in general mixed mucous membrane infections of the respiratory passages. The contra-indications to vaccine therapy are, rapid fulminating infections, confined infections, whether the patient is reacting or not, which should be drained; old chronic infections with a mechanical feature interfering with recovery; cases that have been absorbing excessive toxins; cases in which there is an underlying nutrition defect, which in itself prevents formation of immune bodies. If there is not at least a moderate reaction after injection the vaccine is not right, and if there is not early evidence of recovery some other treatment should be used. In principle, it may be said, the nearer the natural conditions of virulence are represented in a vaccine the more certainly will the normal defense be stimulated.

A Resume of Personal Experience with Vaccine.

Dr. William A. Mann: Based on two years' experience with private cases Dr. Mann had previously made two reports with vaccines in phlyctenular keratitis, corneal ulcers, non-specific iritis, choroiditis and uveitis and penetrating wounds of the eyeball. His conclusions then were that a mixed vaccine of staphylococcus and streptococcus was of decided benefit, and at this time, three years later, feels still more confidence in such vaccines in the diseases mentioned. In the diseases named, due to endogenous infection, it was hardly feasible to make an autogenous vaccine, but in some the offending germ could be obtained by paracentesis. Therefore the mixed vaccines were mostly used. In phlyctenular conjunctivitis improvement was rapid and there was seldom a return. In phlyctenular keratitis healing of the ulcers was hastened, but the most decided results were obtained in the chronic type. One injection was usually sufficient, with a second to assure the cure. In one case of tubercular type improvement was not rapid nor permanent, but improvement

was noted always after vaccine. Tuberculin in addition was advised. In episcleritis the inflammatory signs disappeared after one or two injections. In non-specific iritis, if given in the early stage, pain is increased for 12 to 18 hours, when improvement begins. Either abortion or shortening of the disease occurs. Choroiditis was treated in only a few instances. There was improvement in all cases of uveitis except one, which did not return after the first injection. Vitreous opacities and deposits on Descemet's membrane are not much influenced. They are due to endogenous infection from a focus elsewhere in the body, as the intestines, nasal sinuses, mouth, vagina, gall-bladder, etc. According to S. Mayou, staphylococcus is responsible for most cases. In cases in which tuberculosis was present improvement was not so rapid. The vaccine has been used as a prophylactic in traumatic operative cases, cataract in rheumatic patients and iritis. It does not always prevent cyclitis. The adult dose is 30 million streptococcus, and 100 million each of staphylococcus albus and aureus. A smaller dose for women and a proportionate dose for children, given at three to five-day intervals, gradually increased. The local reaction never goes on to suppuration, though it may be severe. Fresh vaccines cause greater reaction. The preservative may cause some smarting. The treatment need not interfere with any other treatment.

The Diagnostic Reactions in the Diagnosis of Gonorrheal Diseases of the Eye.

Dr. Ernest E. Irons said he wished to discuss under this title the reactions which we at present have command of which will be of value in seeking a diagnosis of gonorrheal infections of the eye rather than to advocate any particular reaction. He understood from ophthalmologists that there are a large number of lesions of the eye which up to recent years have been extremely obscure in their etiology, aside from the conjunctivitis of gonorrheal origin in which there is little doubt of the diagnosis, such as certain cases of metastatic conjunctivitis or ophthalmia: cases of iritis which have been ascribed to rheumatic causes, and it seems probable that a certain proportion of these are due to bacterial infection of metastatic or embolic source. There is also a rather similar nomenclature in dealing with the joints, and some of their features are similar to those of some of the obscure cases of iritis. Some years ago many arthritides in which the etiol-

ogy was not definitely made out which went on to more or less destruction of the joints were classed as arthritis deformans, and it was assumed that nothing further could be done aside from general supportive treatment, diet, etc. Now gradually that large class of arthritis is being cut down by taking out here and there cases which are believed to be of infectious origin and that there is some focal infection responsible for the invasion of the avascular structures such as the serous membranes of the joints, and many of these are gonococcic, and likewise many cases of obscure iritis have been pretty conclusively proved to be of gonococcal origin. And here the question is whether they are of toxic origin or of metastatic origin. The same question has been raised with relation to the joints, and the more the question is studied the more we are convinced that they are of metastatic origin. In a case, for instance, in which iritis and arthritis have developed within a short space of time there is no reason why we should ascribe a toxic pathology to the iritis and a metastatic pathology for the arthritis. It is frequently possible to isolate the gonococcus from the joints or from the circulating blood. So that while Dr. Irons had no personal experience in the study of these conditions in the eye he felt that we should not assume for the eye a pathology different from that for the joints. Therefore, for purposes of discussion, we may say that a gonococcal infection of the eye means that there has been a more or less general infection of the system. There may be no other evidence than possibly the joint and a slight fever; nevertheless the infection may be assumed to be demonstrated.

This then raises the basis for the utilization of certain immunological reactions which have been developed in recent years for the diagnosis of gonococcal infection. As in tuberculous infections, we have a general reaction which can be elicited by the introduction of comparatively large doses of toxic material from gonococcal cultures. These give rise to malaise, headache and a certain local reaction at the site of injection, together with a focal reaction in the affected part. Such reactions are not constant in gonococcus infections, but occur with sufficient frequency to be of some value in diagnosis. Then there is the local subcutaneous reaction which may be obtained by a smaller dose subcutaneously. A small dose in a normal individual will produce little or no reaction; in an infected individual a more extensive reaction. This line of

diagnostic work has been followed out pretty-carefully in the German clinics in the pelvic affections of women and has been found to be of considerable value as confirmed by operation. Then there is the cutaneous reaction which can be demonstrated as in tuberculosis after the method of V. Pirquet. While there are certain disadvantages which rather decrease the value of this method as a single diagnostic agent, still there are certain advantages in the study of the patient by the cutaneous reaction in the use of glycerine cultures of the gonococcus and by repeated tests we can determine that the immunity curve is not constant but goes up and down, and that the exacerbations of joint lesions and the temperature are coincident or follow shortly after a period of low cutaneous reactivity. The third method by which we may obtain diagnostic information in septic cases is by the method of complement fixation, and this method is being followed out with rather satisfying results during the last two or three years. The complement fixation test uses the hemolytic system reaction similar to the Wassermann reaction test. In place of the syphilitic antigen from the liver or extract of guinea pig heart as the antigen there is substituted a gonococcal extract, and by performing the reaction with care fairly reliable results can be obtained. A fourth method by which we can identify rather obscure cases of gonococcal infection is by the cultural method of the various secretions, particularly those of the prostate. Although it is rather not the rule in urethral infections, the prostate may remain infected for a long time, and certain metastatic manifestations in the joints are merely expressions of metastasism of the organisms passed into the blood stream and lodged in certain vulnerable spots. So that in cases in which the etiological factor is not evident we may apply these four tests and in a certain proportion obtain positive results in cases due to gonococcal infection.

Dr. A. Gehrman, in closing the discussion, said in reply to the point raised by Dr. Mann as to the irritation caused by the injection, that he had not found carbolic acid in small doses particularly irritating. He had used many injections on himself in throat infections and there was no irritation that he could attribute to the vaccine. Dr. Mann said he referred to the smarting or burning after the injection, not to irritation. Dr. Gehrman thought that after a few hours there

would be a smarting, but that he would suggest diluting the vaccine just before use with salt solution. Carbolic acid and tricresol are the things usually used as preservatives.

Dr. Wm. A. Mann said he was interested in Dr. Irons' statement that the gonococcus might be the cause of recurrent iritis cases. He had had cases that he thought were, until in a number of them the eye reddened up with deep ciliary congestion, which subsided nicely under atropine, and two or three days later the other eye would do the same thing. In such cases he had used a mixture of gonococcus and staphylococcus, but he thought the improvement occurred before the vaccine had any effect, although it might have had effect later.

Dr. E. E. Irons said he wanted to approve what Dr. Gehrmann had said about the unscientific and irrational methods of treating infections by certain toxic products which are used very largely at present. We can produce the same reactions and the same symptoms of toxemia in animals by the injection of putrid matter from broth containing any sort of organism, and the mere fact that a febrile reaction, with perhaps nausea and vomiting is obtained does not argue for the specificity or effectiveness of an agent.

Dr. Wm. A. Mann asked Dr. Gehrmann whether he had used these vaccines by spray for the local effect. Dr. Gehrmann said he had seen reports of their use in that manner but did not know anything about such use.

A Study of Some Forms of Congenital Cataract, with Special Reference to Their Clinical Significance.

Dr. Derrick T. Vail traced the embryonic development of the lens vesicle from the ectodermic layer and its subsequent inclosure by the mesoderm before and behind which goes to form the structures in front of the lens and the vitreous behind; the formation of the lens nucleus from the cells springing from the posterior layer of the lens vesicle, and the cortical fibers formed from the cells lining the anterior capsule. He said that all forms of congenital cataract are due to some hitch or break in the orderly sequence of the process of normal lens building. Congenital aphakia is rare and is due to a failure of down-growth of the surface epiblast. Congenital nuclear cataract is due, according to Collins and Mayou, to delayed closure of the anterior wall of the lens vesicle. Congenital fibrous tissue cataract is due to failure of the posterior

capsule to form in whole or in part. Congenital disc shaped cataract is characterized by a glittering white, round or star-shaped spot in the pupil space, occupying the anterior substance of the lens as a form of anterior polar cataract. The eye is usually strabismic and markedly nystagmic of the slow rotary type, and is amblyopic, mostly from microphthalmus. Prognosis as to vision after removal is not good. The white spot can be picked out, leaving a lens like a ring doughnut, the ring part being clear. A needling operation is contraindicated, but Smith removes the lens with an iris forceps after an iridectomy. An iridectomy while not as good as total extraction is recommended in preference in the case of very young children. Congenital Morgagnian cataract is found in a small eyeball, with voluntary nystagmus, disassociated vagrant strabismus, a uniform milky, opaque pupil, the cataract being flush with the plane of the iris, presenting a dirty-white or yellowish-white appearance, with vision reduced to light perception. If such a lens is pricked with a needle, a milky fluid floods the anterior chamber. It is due to absence of the formation of cortical fibers from the anterior capsule and a disintegration of the cells of the lens vesicle. Axial fusiform cataract is due to displacement of the lens nucleus forward or backward in the embryo. The triradiate form of congenital cataract, usually just in front of or behind the nucleus, indicates the original suture lines of the early cortex fibers. Originally these lines are near the periphery of the lens cortex, but as time passes, they are gradually forced to move toward the nucleus by the later formed cortex fibers growing from the lining cells of the anterior capsule. The coralliform axial cataract is a congenital form presenting in the axis of the lens structure knotted or irregular bosses not unlike coral formation, and are difficult to explain embryologically. All forms of congenital cataract are apt to be associated with microphthalmus and congenitally deficient retina due to lack of differentiation of the macula lutea. If there is any clear space in the pupil area so as to permit the retina to functionate, operation may be deferred and later an iridectomy may be done on the side best suited as indicated by the strabismus. A rotary voluntary nystagmus also indicates an iridectomy. If there is quiet, steady fixation in the effort to see, an iridectomy will not improve vision as the same axis of fixation will be used by the child. Needling in the above

forms of cataract with glittering opacities would be contraindicated because they are insoluble, permanent and irritating when liberated from their natural position, and also because microphthalmus almost always being present infantile glaucoma may occur, owing to imperfect formation of the spaces of Fontana. Congenital punctate cataract is characterized by round opaque white dots located in the cortex fibers usually in the equatorial region. The eye is full sized and vision is normal, and they have no pathologic significance. They may be due to granular degeneration of cortex lens fibers. Zonular cataract may or may not be congenital. They are believed by Collins and Mayou to be due to some general disturbance of nutrition as they are bilateral and frequently associated with fits in infancy, rickets and defective condition of the teeth. It is not rare and is easily diagnosed by the aid of the red reflex through the dilated pupil and focal illumination, aided by the binocular loupé of Berger or Zeiss. The nucleus and cortex are clear, but surrounding the nucleus is a zone of opacification due to the presence of tiny vacuoles in the lamellar structure of the cortex surrounding the nucleus. Such cataracts lend themselves to the needling operation with the best prospects. Iridectomy need not be performed and the soft cataract substance formed may be evacuated through a small keratome incision. Needling in the other forms of congenital cataract is not good treatment.

Dr. H. S. Gradle said that unquestionably some of these symptoms of congenital cataract must be of toxic origin. This was recently shown by the work of Pagenstecher and Oxenfeld who fed rabbits with beta naphtholine and 90% of the offspring showed congenital cataract followed by opacity of the capsule. This, of course, must be of toxic origin. This was also associated with glaucomatous conditions of the lens and the iris particularly. The condition of the lens was explained by an endarteritis of the hyaloid artery and the long artery coming in over the optic pit. They come together before they should and form a band through which the lens cannot develop. A notch is cut out of the lens, and these things are associated with the various forms of congenital cataract which Dr. Vail has spoken of.

Dr. W. A. Fisher said that we had all been taught that Col. Smith always does an iridectomy with cataract extraction, and Dr. Vail has told us that he operates as early as 12

months by the intracapsular method. He would like to have him tell what treatment Col. Smith uses in the simple extraction in these early cases.

Dr. Derrick T. Vail said in closing that in the paper he had stated that the iridectomy operation could be done as early as one year, but he did not say that the lens was removed as early as one year. He had seen Col. Smith remove them as early as they came, and he had seen them as young as three or four years. He makes a small incision in the cornea with the Graeffe knife, not quite as small as he could make with the keratome. These lenses are all rudimentary. The rough sketches by which he illustrated his paper indicated that they are of full size, but they are exceedingly small, not much more than a small calcified membrane, and they do not require a very large dissection, and the forceps are forced down into the eye, and the lens is grasped and pulled out. He simply ties them up with a figure-of-8 bandage, one turn for each eye, and the child is carried off to be taken care of by the parents. In regard to the naphtholine tests spoken of by Dr. Gradle, it is well known that naphtholine will produce cataract in the adult human as well as in animals, similar to the cataract produced in hookworm anemia, of a milky character somewhat like those that form in rabbits as described by Dr. Gradle.

WESLEY HAMILTON PECK, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

REGULAR MEETING OF MAY 19, 1913.

DR. WILLIS O. NANCE, President in the Chair.

Glaucoma.

Dr. Thomas Faith showed a case of glaucoma, recently trephined. He presented the same patient several months ago because of the fact that the patient was rather young. One eye was in a condition of absolute glaucoma, with tension of 72. Various lines of treatment had no effect whatever. Under the use of miotics subconjunctivally saturated sodium solution had no effect in reducing the tension in one eye, while in the other tension could be kept down to normal with eserine. The ectasia of the sclera was becoming more prominent, and, as he feared a rupture of the globe, he insisted on doing scleral trephining, which was done four weeks ago, and in the course of the next two weeks tension went down rapidly until it was 34, then it

rose again to 42. Today he saw the patient again, but did not know what sort of change had taken place in the eye. There had been no pain. The patient was very nervous. Tension was minus. He did not believe there was any process of disorganization from the looks of the eye, but the trephine opening had opened again through some nervous tension. The eye looked good except it was extremely soft. The operation was done to prevent rupture of the globe, which seemed imminent on account of the large ectasia of the sclera which was present. The operation was done to the temporal side. He used the Gradle trephine, and said it was an ideal instrument for the purpose. Compared with iridectomy the operation was very simple. The iris looks discolored as compared with the other eye. The pupil contracted well with eserine. Tension in the other eye was 25.

DISCUSSION. Dr. William A. Fischer quoted Dr. Gradle as saying that there was an irido-cyclitis in the case. As to the operation, he thought it was far superior to iridectomy. He had only done a few of these operations, and the results were equal to, if not better than, those following iridectomy.

Dr. H. W. Woodruff asked if the trephining was an iridectomy, or was the trephining done alone without an iridectomy.

Dr. Harry Gradle said if one did the trephining alone and went far enough forward it might suffice without an iridectomy, but, as a rule, one could not get far enough in the cornea, and consequently the pressure of the aqueous in the posterior part was sufficient to jam the iris up into the filtration angle and close the scleral wound.

Dr. Faith could not understand why Dr. Gradle thought there was present irido-cyclitis. There was no deposit, and the lens was clear. Tension in the left eye was higher today than it was last Friday. There must have been a leak because the anterior chamber was shallower to-day than it was several days ago. The discoloration of the iris had been present since the operation was done. There was bleeding in the anterior chamber, and discoloration followed it. In this case he tried to do an iridectomy. He took a piece out of the iris, tension went down immediately, and after healing had apparently taken place and the anterior chamber he reformed, tension was 46 or 48, coming down from 72. Tension persisted in getting lower until the other day when it was 28.

Involvement of the Posterior Group of Ethmoid Cells.

Dr. George F. Suker presented a young man concerning whom he had been unable to ascertain what was the matter, except that some twenty odd years ago he was struck a violent blow on the right side of the forehead. For several months prior to January, he had what appeared to be a cystic protuberance to the outer angle of the right orbit in the region of the lacrimal gland. Palpation gave the impression that there was fluid in it, and being in that region, presenting under the brow, he did not see the necessity of going any further than making a tentative diagnosis of a small dermoid, because the patient had had a so-called dermoid tumor removed from his spine some years ago, and under local anesthesia Dr. Suker made a small section, punctured the little sac, and out came a yellowish fluid. He dissected the crest of the sac off for microscopic examination. He began to squeeze it a little and to curette, and he curetted a mass which looked suspicious of being gray matter. The probe went far back into the patient's head, and disappeared in any direction he wanted to move it. It went in two and a half inches. He felt somewhat timid about going further and proceeded to close the wound, which he packed a little as a drain, but the wound kept on discharging all this time. The eyeball was now a little lower and projected farther forward than it did, but not one-tenth as much as when he saw the patient first. He could not stop the discharge by injections or by curettement. He decided upon further operation. He had some X-ray pictures taken which showed on the right side an oyster-shaped affair in connection with apparently the frontal sinus. Under general anesthesia he opened up, thinking he would have to do complete exenteration of all sinuses. Starting at the bridge of the nose, he cut through the brow and right above the superciliary ridge. He trephined, and found the mass which he had apparently curetted at the primary operation. He did not know the nature of it. He kept on dissecting and curetting, and finally removed the mass, which he exhibited. He had to remove a part of the frontal bone, and went back as far as the lesser wing of the sphenoid on top to the roof of the orbit itself. The roof of the orbit was pressed up and back and filled with this mass, the nature of which the microscopists have not been able to determine. It was not fat. It was not organized tissue, and it did not react to anything. One could hardly cut it on account of its being

so fragile. It came off in layers. The periosteum itself was not involved. It was very difficult to remove the entire mass. There was no bleeding connected with it, and the orbital contents were pressed upon by this mass. The patient had a moderate choked disc in that eye. Vision was now fully 20/20, the same as the other eye. Patient had never had any diplopia prior to the operation nor since except irritation which came from secondary swelling. Since the operation patient had a smaller pupil on this side, and a narrower palpebral aperture, which might account for the interference with the ciliary ganglion and interference with the sympathetic.

Before he closed the wound he broke through the ethmoid and established drainage through the nose with a large cigarette drain. Healing by first intention occurred, but the sinus kept on discharging what was apparently laudable pus, whatever that was. After examining several microscopic sections the pneumococcus was found, but not very pronounced. Every once in a while he would find some pneumococci. The sinus remained for a long time. Finally, he injected bismuth paste, and after two injections the discharge stopped and healing took place.

What was this mass, and what was its origin? The only thing he attributed it to was that the blow which the patient sustained caused a diploic hemorrhage and disorganization of the mass, whatever that mass was. There was no roof to the orbit. After he removed the part that pressed upon the top of the superior rectus muscle, there was one layer. He went back to the lesser wing of the sphenoid; the mass was about the size of a large hen-egg, and came out in layers. It could not be picked up with a pair of forceps, being too brittle. It did not dissolve in ether. It did not take the Soudan stain and showed no morphological cellular elements under the microscope. The patient was in good condition now. He never had any pain or elevation of temperature. This mass had no connection with the frontal sinus. He went into the frontal sinus to determine whether it was involved or not, but it was not. The X-ray plates would show it was connected with the frontal sinus. The posterior plate was thin. In trying to curette the periosteum he broke through and exposed the frontal lobe for an area about the size of half a dollar.

He would like to know the nature of the mass, its origin, how the cyst formed, how the roof of the orbit came to disap-

pear, and why it was that the patient did not have more ocular complications. The choked disc disappeared in forty-eight hours after the mass was out.

DISCUSSION. Dr. B. F. Andrews said he had a skull in his possession that showed what apparently were displaced ethmoid cells, that is, the posterior group of ethmoid cells, which extended backward as far as the lateral wall of the orbit, and he thought in Dr. Suker's case there was possibly involvement of the posterior ethmoid cells.

Further Report on Parinaud's Conjunctivitis.

Dr. George F. Keiper, of Lafayette, Indiana, referred to his previous publication on this subject. The disease was quite rare; even to date comparatively few cases were reported.

The writer had seen two new cases, one of which had the granulation excised and examined under the microscope. The chief characteristic of the serial sections was the presence of fungus filaments which resembled those found in mycosis of the tonsil, the leptothrix. All bacilli of any import were found wanting. Cultures were negative as to any characteristic bacteria. The leptothrix might be the cause of the disease.

Recent investigators assumed that the disease might be an attenuated tuberculosis. But that was not proved.

All cases had recovered without material damage to vision. Authors were agreed that it took from two months to six months to effect a cure. It was Keiper's experience that all his cases had recovered under five weeks. To date he had had three cases, unilateral.

Photographs were shown exhibiting the peculiar glandular swelling of the face and neck, together with the swollen eyelids and the granulation upon the everted eyelids, as well as in one case marked chemosis of the ocular conjunctiva.

DISCUSSION. Dr. Harry Gradle stated that an article appeared recently in the American Academy of Ophthalmology proceedings, in which Verhoff reported twelve cases of Parinaud's disease in his own practice, and that in eleven of these cases he had isolated the leptothrix buccalis. He considered the disease due to the leptothrix. This would coincide with Dr. Keiper's idea of the pathological picture of simple mycosis of the tonsil.

Dr. Thomas Faith stated that several years ago Dr. Lamont and he had a case of this kind at the clinic. The man was a railroad car repairer, working on stock cars. He had enlarge-

ment of the preauricular glands and of the cervical glands on that side and on the opposite side. He had a temperature of 100, and in order to make the diagnosis some of the tissue was removed and examined by Dr. Brown Pusey; also some secretions from the conjunctiva, but nothing pathognomonic was found. They also excised some pieces of the conjunctiva and transplanted them in the anterior chamber of the rabbit's eye and under the conjunctiva, but there was no growth. The piece in the anterior chamber did not set up a light degree of iritis, and it was put in the conjunctiva, and was absorbed. There was no evidence of tuberculosis in the rabbit from this transplantation, so they concluded the case could not be one of tuberculosis, but one of Parinaud's conjunctivitis.

Infection Following the Extraction of Cataract.

Dr. H. W. Woodruff, Joliet, stated that on the 18th of last March Mr. E. R., a farmer, consulted him for the treatment of cataract. He had lost the vision of one eye for a year. His general physical condition was good. His blood pressure was 160. The urine was normal. Patient was one of the emotional nervous type. His right eye had vision = 6/15, beginning cataract; his left eye had vision = counting fingers at 5 ft. A smear examination from the conjunctival sac was negative. A combined operation was performed April 1, 1913, at St. Joseph's Hospital. Bromide of soda was given before the operation. The conjunctiva, lids and lacrimal sac were free from signs of inflammation. Notwithstanding an apparent satisfactory anesthesia, the patient squeezed his lids during the performance of the incision. No visible harm resulted from this, and after a few words with the patient he recovered his composure, and the incision was completed in the cornea, an iridectomy was done, and capsule forceps used and the lens extracted *in toto* without any further difficulty. The patient was fairly comfortable for 48 hours, but complained of some discomfort the second night. On April 4th, the third day after the operation, there was a distinct hypopyon with the characteristic white color. A solution of cyanide of mercury, with 4 minims of 4 per cent. solution of cocaine was injected deeply into the outer cul-de-sac. This was at 9 A. M. At 5 P. M. the hypopyon had not increased. There was some secretion along the corneal incision, examination of which showed the xerosis bacillus. After this was wiped away the wound was cauterized with tincture of iodine. An-

other injection was made of the same solution of cyanide of mercury with cocaine. These injections were followed by moist hot applications for one hour for relief of pain. The next morning, after a night free from pain, there was no hypopyon present. The wound edges remained white for several days with some secretion. The patient made a slow recovery due to the engorgement caused by the injections. He left the hospital two weeks after the operation. At the present time, one month and 15 days after the operation, his eye was still somewhat red. Capsule, but no cortex filled the pupillary area, visible only by oblique illumination. His vision was $6/20$ with $+8.50 + Sc ax. 175^\circ$.

Infected eyes had been saved before by other means than the cyanide of mercury. The speaker himself had saved one eye by the injection of argyrol into the anterior chamber; another one by the galvano-cautery applied to the corneal wound; but he believed the method used in this case to be the most effective and the most certain to yield results with preservation of useful vision.

DISCUSSION. Dr. Meyer Lebensohn had used cyanide of mercury injections in cases of hypopyon keratitis many times with distinctly beneficial results in some cases. One case, seen five or six weeks ago, had the anterior chamber filled with an exudate. He gave one or two injections of cyanide of mercury and it cleared up the condition. He had to continue giving the injections, however, once or twice a day, or as often as was necessary, and saved the man's eye. He was not certain that the cyanide of mercury was the only injection to use. Some declared that normal salt solution would do just as well. He had used cyanide of mercury injections since Dr. Woodruff had used them in many cases of hypopyon keratitis, and with good results.

Dr. Harry Gradle thought Dr. Woodruff's paper in regard to the cure of infection following cataract extraction was timely, but he did not agree with his method. Infection could be prevented absolutely by taking proper precautions before the operation. Infection following cataract extraction was due to organisms that had gained entrance to the eye from the conjunctival sac. A smear was not sufficient to prove whether the conjunctival sac was sterile or not, nor was a solid culture medium. Fifty per cent. of the organisms in the sac could be shown by

smear or cultural methods, whereas a fluid culture would show one hundred per cent. If organisms were found, well and good, but if one did not find them he did not know whether the sac was sterile or not, and he had no license to do an iridectomy until it was known that the conjunctival sac was sterile.

Dr. Woodruff, in closing, said everyone would admit that prevention was the most important part of any line of treatment, but even with the utmost care the most scientific men would occasionally have infection. He was certain he had saved eyes by this method that otherwise would have been lost. He had not used normal salt solution in a case of infection following extraction of cataract. In the light of his favorable experience with cyanide of mercury he would hardly feel inclined to use normal salt solution. If cyanide of mercury was used in these cases early, it would do the work.

Dr. Suker asked how strong a solution was used, to which Dr. Woodruff replied, a solution of 1-1000.

Dr. Suker asked whether there was much reaction to which Dr. Woodruff replied, there was.

Dr. A. H. Andrews read a paper on "Malingering."

WESLEY HAMILTON PECK,
Secretary.

**ROYAL SOCIETY OF MEDICINE.
SECTION OF OPHTHALMOLOGY.**

MEETING HELD JUNE 4TH, 1913.

THE PRESIDENT, SIR ANDERSON CRITCHETT, BART., C. V. O., IN
THE CHAIR.

Mr. Cole Marshall showed a case of uncommon type of cataract in a child.

Mr. Bishop Harman brought forward a case of melanotic growth, which seemed to originate in the iris.

Mr. Jessop inclined to the view that it sprang from the ciliary body and pushed the iris on one side, causing flattening of the edge of the pupil. He agreed that it was a melanotic sarcoma.

Mr. Treacher Collins mentioned a case of melanoma of the iris, malignant characters having arisen later. He agreed with Mr. Jessop that in the present case the origin of the growth was probably the ciliary body. A possibility in Mr. Harman's case was that it was a cyst, such as Mr. Coats described, with agglutination of the ciliary processes.

Detachment and Re-attachment of the Retina.

Mr. Bishop Harman also showed a case of spontaneous recovery from detachment of the retina. The patient had had complete detachment for three months, and during it she was treated by rest in bed; she refused operation. Shortly after that date the sight suddenly came back, and now there was no trace of any detachment: all that could be seen were one or two cobwebby lines in the disc. She had 6/36 one-letter vision. She had 10 D of myopia, but there had been no accident of any kind. She was a cook in a good family, and one February night she walked out from a hot room to the cold air, and her description was that something black suddenly fell over her eye, and she could not see anything more with it.

Mr. Goudie described the case of a child which came to Glasgow Eye Infirmary with detached retina, and in whom three months later the retina became re-attached. Two months afterwards it again became detached, only to again become attached. There was fair vision, and no iritis.

Mr. Rayner Batten said he had a case with nearly 20 degrees of myopia and detachment. Detachment occurred also in the other eye, and the patient was so blind for a year or two that she had to be led about. Later she came and said she saw a glimmer of light, and from that date her sight began to return; she accepted her lenses again, and was able to find her way about. He believed her vision was 6/24.

Mr. Herbert Parsons said he, like others, was sceptical about spontaneous recovery from detachment being possible, until he had a case which altered his view. It occurred in hospital, and though a little later the patient was very carefully examined, no trace of the detachment could be detected, not even streaks to mark what had occurred. Eighteen months later, however, there was a relapse.

Mr. McNab described a case of double detachment which underwent spontaneous cure. In another case in which the condition occurred there had been irido-cyclitis, and he believed it was due to tubercle of the eye; there was a large vitreous opacity, and very extensive detachment: the eye was very soft, being practically devoid of tension; the cornea could be seen to be dull and crinkled. Vision was reduced to mere perception of light. He gave tuberculin, and vaccine cultivated from the patient's own coli bacilli. For four months

now the tension had been normal, and the patient could count fingers at 5 or 6 meters.

Mr. Jessop reminded the meeting that when the Ophthalmological Society discussed the subject, only one case was reported as having been cured, and that was spoken to by Mr. Nettleship and Sir John Tweedy. Many cases of cure of the condition had been reported, but they had not been lasting.

Mr. Ormond did not share Mr. Jessop's scepticism, and described a case of his own, in a patient who had been treated by glasses for high myopia, and a little later she said her vision suddenly went in one eye. She had obvious detachment of the outer side of the retina. He did a sclero-puncture, and removed some fluid, and in three days the detachment had disappeared. He had seen her a number of times since, and the attachment remained absolute. Vision was 6/36.

Mr. Leslie Paton reminded the meeting that Mr. Harman's case was one of spontaneous re-attachment, not after operation. He was more optimistic than Mr. Jessop on the subject. He has seen a case of 35 years' standing cured after operation, though it was a double case. In another case, that of a lady with 15 D of myopia, and vision 6/18 in either eye, there was detachment in one eye, resulting in blindness, and that was followed by detachment in the other eye. After operation her vision was better than before the detachment. In the case of a girl with detachment, she was put on her back and treated with mercury and iodide, and in three months the retina had become re-attached, leaving only a curious distribution of retinal pigment. In a series of 28 cases of detachment which he had looked up, 7 were cured.

Mr. Nettleship and Mr. Jessop suggested that in the near future a further discussion on the subject should be held by the section. Mr. Nettleship said he had records in his case-books of several cases of detachment which had recovered.

Mr. Cunningham showed a case of nystagmus with unocular fixation.

Professor Worthington, F. R. S., gave a contribution and demonstration on "An experimental study of normal monocular polyopia."

Mr. G. H. Pooley showed a case of cyst of the iris, and Mr. Goudie a case of corneal ulceration, the discharge from which contained fusiform bacilli and spirilla resembling those

found in Vincent's angina. Dr. Freeland Fergus presented a communication entitled "Glaucoma associated with venous congestion."

Mr. Bishop Harman submitted a paper on **The Education of High Myopes**, the experience of four years. It was an account of the working of a scheme for the safe education of children with such a degree of myopia that they were not fit for the ordinary school curriculum, yet were not bad enough to require the teaching for the blind. In any scheme of compulsory education there must be provision for misfits, and for none was this more necessary than for high myopes, who often had great intelligence and hence were in danger of damaging their delicate eyes by over-application. He explained the method of selection of cases and their transfer to centers for special instruction. The curriculum fell into three parts: (1) Oral, the children being associated with scholars of the ordinary school for subjects which could be taught orally. (2) Literary work, which was learned not by books, pens, or paper, but by blackboard and chalk, the writing to be done free-arm fashion. (3) A full use of the handicrafts which would develop attention and concentration with a minimum use of the eyes. His conclusion was that a suitable system of teaching myopes could be arranged and satisfactorily carried out. Such classes should not be independent units, nor be associated with existing blind schools, but should be integral parts of existing elementary schools. The success depended almost wholly on the intelligence and initiative of the teacher, who was required to do real teaching. The training of these children should be general, not merely technical. The classes should be of small size, with an optimum number of a dozen per teacher, and there should be a standard of visual acuity of 6/18 with suitable glasses. The children should also be under regular medical supervision during the whole of their school life.

ROYAL SOCIETY OF MEDICINE—SECTION OF OPHTHALMOLOGY.

WEDNESDAY, JULY 23RD, 1913.

MR. T. H. BICKERTON, PRESIDENT, IN THE CHAIR.

The President opened the work of the Section with an address in which he sketched the progress of ophthalmology during the last century, and paid special attention to the part taken by the British Medical Association in its development.

Mr. John Hern (Darlington) opened a discussion on School Clinics in relation to the prevention of myopia. He considered them under four conditions which acted as causes for its production: (a) inherited tendency; (b) use of the eyes for near vision; (c) congestion of the coats of the eyeball (especially the sclerotic) produced by stooping; (d) compression of the eyeballs on looking downwards by the extrinsic muscles, especially the obliques. The practical point was, How could it be prevented? The most important thing was an accurate correction of the refractive error, so that all strain might be removed, and the eye allowed to develop in the right directions. Good illumination, and a correct position of the child's books were essential. Distant vision should be encouraged. He claimed by these means not only to have prevented the development, but also to have seen well marked cases of myopia become emmetropic.

Mr. Maddox (Bournemouth) said he was in general agreement with Mr. Hern, but he had never seen myopia change into emmetropia. He viewed with approval the formation of special schools for myopic children, though it was difficult to persuade parents to send their children to any school of the kind. He suggested that this disinclination of the parents might be overcome by the formation of special classes in the ordinary schools.

Mr. T. Harrison Butler (Leamington) thought that the mechanical theories of the production of myopia by such means as Mr. Hearn suggested, had not been fully proved. There was much experimental evidence against it. The clinical evidence that advanced myopia was found in children under the school age, and the not infrequent occurrence of unilateral myopia, told strongly against these views. He pointed out that efforts at prophylaxis extending over a quarter of a century had had no effect in reducing the incidence of myopia in Germany. He thought that the disease was due to an inherent vice in the sclera, which allowed the posterior pole to stretch under the normal intraocular tension. Any debilitating influence, such as high pressure in school, would aggravate this tendency. The introduction of open-air games in the Swedish schools had greatly reduced the incidence of myopia. High grade myopia with choroidal changes had been shown by recent German statistics to be more common among the rural population than among the more educated.

Dr. J. A. Wilson (Glasgow) said that there was no evi-

dence that myopia was directly due to school work. He pointed out that the changes in myopia were quite different from those seen in buphthalmos and other conditions in which the intra-ocular tension was definitely raised, and also that myopia definitely existed in people who had never done any near work. He considered that heredity was the principal factor, and high myopia was an evidence of a general diseased condition of the eye, and that there was so much evidence to show that school work *per se* was a cause of myopia. He approved of general hygienic school measures.

Mr. Bishop Harman (London) was surprised that while German work had been largely drawn upon, the excellent work of the medical officers of the education committee of the London County Council seemed to be almost unknown to the majority of speakers. Their statistics showed that myopia in London school children was an almost negligible quantity, amounting to less than 1%.

Dr. John E. Weeks (New York) said that myopia developed much more frequently in young individuals who did much near work. He thought the ultimate cause was an undue distensibility of the sclera, which was aggravated by bad hygienic conditions and close work. In his private practice he found that carefully corrected myopia seldom advanced beyond a very moderate degree when due attention was given to correct hygiene.

Dr. R. A. Reeve (Toronto) thought that the cases of cured myopia alluded to by the opener of the discussion were really due to prolonged spasm of accommodation. He himself had never witnessed a case of true myopia being cured. Cases of this variety were often treated by prescribing opticians with *minus* glasses, with disastrous results to the well-being of the patients. In America, the results of careful prophylactic treatment were much more favourable than those mentioned by Dr. Butler in Germany. In this connection, he brought forward the published statistics of Dr. Riseley, of Philadelphia.

Mr. Herbert Parsons laid stress on the varieties of myopia. Those due to normal variations were often stationary. He did not think that congestion of the head was a factor capable of physiological proof, but his own experiments on animals convinced him that spasm of the extraocular muscles could raise the tension to a marked degree. In progressive myopia, some weakness of the sclera must be hypothesized, but every effort

should be used to guard against the ill effects of near work.

Dr. Marion Gilchrist (Glasgow) agreed that heredity had much to do with the development of myopia, but she had never seen a case cured. Bad hygienic conditions, excessive near work, and faulty correction of the refraction, all caused it to develop.

Colonel Pridmore (Rangoon) said that among the natives, boys suffered far more from myopia than girls, and this was due to the much more studious habits of the boys.

The President shortly summed up.

Mr. A. Ferguson MacCallan (Egypt) read a paper on the Ophthalmic School Clinics of Egypt. The measures adopted included the active surgical repression of trachoma, the correction of errors of refraction with the gratuitous provision of spectacles, the isolation and treatment of acute conjunctivitis, and the preparation of detailed statistics. As most children were infected before school life, about 96% were found to be still suffering from the disease. Those which had been cured in 1907 amounted to 2%, and in 1913 to 55%. He gave detailed statistics about the cases, and explained the tables he showed.

Colonel Elliot (Madras) thought that Mr. MacCallan's classification of cases of trachoma was most valuable. In India the disease was largely spread by the use of antimony paste, a cosmetic widely used by the more well-to-do classes.

Mr. E. E. Maddox (Bournemouth) read a paper on super-corneal sutures, and an operation for conical cornea. By super-corneal suture he meant threads designedly laid over the face of the cornea, either nakedly, or with the intervention of oiled membrane for the purpose of effecting direct traction on the conjunctiva. The toleration of the cornea to such sutures was remarkable, and they were of value after certain traumatisms, and after the operation for conical cornea by excision of the ellipse.

Remarks were made by Messrs. Devereux Marshall, Hearn and W. H. Brailey.

Dr. J. A. Wilson (Glasgow) read a paper on Nystagmus, with a review of 100 cases, chiefly ordinary, or non-miner's, nystagmus. He pointed out that in non-miner's cases there was usually some other ocular defect. In miner's nystagmus also, there was also imperfection of retinal images, and in this way they re-sembled each other. He suggested the ametropic

or other defect was equivalent to the darkness of a mine as a causative agent.

THURSDAY, JULY 24TH, 1913.

MR. T. H. BICKERTON, PRESIDENT, IN THE CHAIR.

Dr. F. W. Edridge-Green read a paper on the History of the Sight Tests of the Board of Trade. He pointed out that the first commission which was appointed to consider the matter deliberately refused to examine his color-blind patients who were able to pass the Holmgren test with ease, and ultimately recommended this test as the sole means of examining the candidate. The inefficiency of this test became so notorious that, after several questions had been asked in parliament a new commission was appointed two or three years ago. This commission consisted almost entirely of known advocates of the test, and not one person was included who had taken part in exposing its inadequacy. Under these circumstances, the Imperial Merchant Service Guild refused to give evidence before the committee likely to be so biased in favor of tests which had caused so much hardship to many of their members who had passed the tests on taking their first examinations, and then, many years later, had been rejected and deprived of their means of earning their livelihood. This commission, like the former one, had refused to allow him to demonstrate cases before them. The report they issued again recommended a modified wool test, to which they added a lantern which the author considered quite inadequate, containing, as it did, only three colors, without the addition of any modifying neutral glasses. It was obvious, after a careful perusal of the report, that the commission still believed the wool test to be an efficient one, and only adopted the lantern tentatively. During the first six months the lantern was used the rejections had risen from 0.8% to 6.22%, and the whole of this increase was due to the lantern. Although a large number passed the wools and failed with the lantern, not one was found who passed the lantern and failed with the wools. Dr. Edridge-Green therefore concluded that even this very inefficient lantern had more than justified its existence. He also criticised the form test, which was carried out with letters printed on a scroll which unrolled unevenly, thus materially altering the size of the letters. He also adversely criticised the slipshod method of illumination, and the fact that the examination was conducted by laymen who had no technical knowledge of the

eye or of color vision. He therefore proposed the following resolution: "That the sight tests of the Board of Trade are not satisfactory, and that an enquiry is urgently needed in the interests of the Mercantile Marine of the Nation."

Mr. Devereux Marshall seconded this. He was in complete agreement with all that Dr. Edridge-Green had said. He considered the new lantern inefficient in every important particular, and was so simple that any candidate could have one made and thus make himself acquainted with the only two colors which it exhibited. The methods used were so unscientific and were employed with so little skill that probably many of those now rejected were fully competent to discharge their duties, though some of them might be weak in some unimportant details.

Mr. T. Harrison Butler (Leamington) pointed out that Professor Sturgardt, of Kiel, in a long paper devoted to color tests in the German navy and railway service, although upholding the Young-Helmholtz theory, stated that Holmgren's wools should be entirely discarded. He preferred to rely on Stilling's test and Nagel's Anomoloscope. He thought it absurd that men who were stated to be too illiterate to name colors, should be expected to understand the nature of a Rayleigh equation. He adduced three cases which had recently come under his notice of railway employees who had for many years passed the companies' tests with ease, and were then rejected, and of another who passed the wools with facility and yet failed utterly with the lantern.

The President pointed out that Dr. Edridge-Green was not alone in the treatment he had received at the hands of the Board of Trade. He himself had had ample opportunities in Liverpool of becoming acquainted with the erratic results of the Board of Trade. He knew of several officers who had held high positions whom he found to be dangerously color-blind, although they had passed these tests. He had grown tired of making representations to the Board of Trade, and considered that the only way of influencing them was through the individual efforts of Members of Parliament. He had been long aware of the futility of the Holmgren test.

Mr. J. Herbert Parsons stated that as a member of the departmental committee his hands were to a great extent tied, but he strongly defended the lantern which the Board had adopted. Great pains had been taken to adjust the luminosity

of the three colors, and that it was impossible for the candidate to guess the colors by difference of luminosity alone. He believed it to be thoroughly efficient for the purpose for which it was constructed. It had been in use for too short a time for any final verdict to be given as to its value. The committee recognised the imperfections of the Holmgren test, but considered it advisable to retain it.

After some remarks by Mr. W. H. Brailey, the resolution was put, and was passed with one dissentient.

Mr. T. Harrison Butler (Leamington) introduced a discussion on the Treatment of Chronic Dacryo-Cystitis. He pointed out that as early as the 18th century Percival Pott had recognized the futility of probing the nasal duct, and had obtained more success by lavage with Anel's syringe. He had even attempted to form an artificial opening through the lacrimal bone, thus anticipating Toti's operation. He considered the subject under the headings of the disease in children, and in adults. The causes in children were failure of the nasal duct to completely canalise, a condition best met by the single passing of a probe, followed by lavage. Other causes were syphilis and tuberculosis. The causes in adults were endonasal disease and tuberculosis, the presence of a diverticulum from the sac, and trachoma. In non-suppurative cases, patient lavage was often a satisfactory means of treatment. When suppuration was present, lavage was rarely successful, and it was generally necessary to extirpate the sac. This should not be delayed in the case of workmen in those trades in which injuries of the cornea were frequent. Trachomatous sacs should be extirpated at once. They were very friable, and lavage often led to rupture of the sac, which had been followed by serious orbital cellulitis. He deprecated the use of probes and styles, believing that although these methods were apparently sometimes successful, the septic sac remained behind, which not infrequently led to hypopyon ulcer.

(To be continued.)

The Faculty of the University of Colorado, School of Medicine, elected the following men to serve in the department of eye, ear, nose and throat: Dr. Wm. C. Baue, Chairman; and Drs. Melville Black, Edward Jackson, David H. Coover, Robert Levy, John M. Foster, and John Chase.

NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Building, State and Madison Streets, Chicago, Ill.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

Dr. Harold Gifford of Omaha is said to have been ill with sciatica.

Dr. James M. Roy of Louisville, Ky., who has been abroad for the summer, has returned.

Dr. Sydney Walker of Chicago was married, September 16th, to Miss Isabelle Irwin of Chicago.

By the will of the late Harriet O. Cruft the Massachusetts Charitable Eye and Ear Infirmary receives a legacy of \$10,000.

Dr. Brown Pusey of Chicago recently underwent an operation for the removal of his appendix. His condition is said to be favorable for a speedy recovery.

Dr. Hiram M. Martin of Chicago died September 29th at the Passavant Memorial Hospital, aged 54. Dr. Martin held the posts of professor of diseases of the eye and ear in the Chicago Ophthalmic College and in the Jenner Medical College.

Dr. Edwin W. Bartlett of Milwaukee, Wis., died in that city September 11th, aged 74. Dr. Bartlett had practiced ophthalmology forty-three years, and for thirty-eight years was local surgeon for the Chicago, Milwaukee & St. Paul Railway.

Reference has been made in the public press to a new vaccine for gonorrhoea, said to have been prepared by Dr. Nicolle, Director of the Pasteur Institute of Tunis. The effect on ophthalmia neonatorum is said to be wonderful, one injection resulting in a cure.

The seventh annual convention of the Illuminating Engineering Society was held in Pittsburg, September 22-25. Ophthalmologists would do well to get into closer touch with this Society. There is no question that the science of illumination is in its infancy and team-work between engineers and eye-men will do much to forward this work. The Chicago Section of this Society holds regular meetings in the Monadnock Block. For further information communicate with J. B. Jackson, 28 N. Market St., Chicago.

A very proper arrangement has been instituted at the Illinois Eye and Ear Infirmary, Chicago. The assistants on the various services receive for their work an honorarium, which is paid from the appropriation for the maintenance of the infirmary. This is a distinct improvement over previous conditions, and if possible, should be followed in all institutions of similar character. While, of course, the amount received by an assistant does not recompense him fully for his time it is a very fair arrangement on the whole.

Dr. Willis O. Nance of Chicago, a member of the City Council, is endeavoring to have an ordinance passed, prohibiting the sale of fluid-core golf-balls in which the fluid is caustic in character. Many accidents have occurred from the bursting of the thin rubber bag containing the chemical fluid, resulting in serious damage to the eyes. Recently, a janitor at the Jackson Park Public Golf Links, Chicago, was struck in the eyes by a jet of such caustic fluid. A player had cut open a golf ball of this type and the fluid struck the janitor in the eyes as he was passing.

On Monday, November 10th, the fourth annual session of the Clinical Congress of Surgeons of North America will convene in Chicago. There is every indication at the present time that this session will prove one of the most notable gatherings of surgeons ever held on the American continent. Since the initial meeting in Chicago, three years ago, the Congress has achieved two remarkably successful meetings: at Philadelphia in 1911, and at New York in 1912, more than 2700 surgeons registering at the last session. From inquiries received by the General Secretary, the attendance at the Chicago meeting will equal if not exceed that at New York.

As its name indicates, the Clinical Congress, as an organization, has for its object the emphasizing of clinical demonstrations for the benefit of its members rather than following the conventional method of inviting its members to read and discuss papers. This plan restricts its sessions to the larger cities where an abundance of clinical material is always available and where there are competent clinical teachers fitted to make demonstrations and willing to open their clinics to the members of the Congress. Registration at either the Hotel Sherman or Hotel La Salle is necessary to obtain a card admitting the bearer to the clinics.

The following from the Canon City (Colo.) Daily Record seems to show that quackery still flourishes. The publication of such an editorial in the lay-press, however, is a hopeful sign.

"It's a strange thing to us why Canon City men or women would trust their eyes or their health in the hands of some unknown traveling doctor of any kind. It's a strange thing to us why any Canon City man would buy a suit of clothes or a bunch of teas or groceries from a strange agent whose word and business methods are wholly unknown to the buyer, and whose goods must be taken on faith in a stranger. But it is infinitely more incomprehensible why a man would trust his eyes, or the eyes of his wife or child, to the care of an unknown man whose ability, skill and professional reputation is wholly unknown. The eye is about the most sensitive and delicate organ about the body, and the one a person can least afford to take any chance with. You might afford to take a chance with a stranger on fixing up your corns or ingrown toe nails, but when it comes to the eye or some delicate question of health you should be pretty well satisfied that the man you go to is all right. And if the man lives in Canon City and you can go back to see him any time, he is pretty apt to give your case a good deal more thoughtful care than the man who is here today, gets your money, and is off tomorrow, perhaps never to return again. Think it over."

The following reprinted from the Berlin letter to the Journal of the American Medical Association is of especial interest to ophthalmologists.

"The seventieth birthday of the noted Berlin ophthalmologist, Prof. Julius Hirschberg, was observed September 18.

Hirschberg's name is closely connected with the progress of modern ophthalmology. After he attracted the attention of Albrecht von Graefe in the Berlin municipal cholera hospital he stood in close relation to the father of ophthalmology, and helped with his own work to raise the treatment of the eye to the rank of an independent medical science. He was born in Potsdam, studied in Berlin, and was then for two years an assistant of Virchow. From 1866 to 1868 he was Graefe's assistant. Then he founded his own institute for ophthalmology, which has been in existence for over forty-three years, and in the records of which hundreds of thousands of patients are inscribed.

"In 1870 Hirschberg began to teach in the Berlin university; after nine years he became professor extraordinary, and in 1900 he was made regular honorar-professor. His scientific work, however, was not devoted exclusively to medicine. Even when privat-docent he took up the study of higher mathematics and physics, and worked in the laboratory of Helmholtz. As a result, the scientist was capable of writing on the mathematical principles of medical statistics. Scientific journeys took him into almost all parts of the world, and his diaries on these journeys are very stimulating, especially the description of his journey around the world, and his books on Tunis, Egypt and 'From New York to San Francisco.' The ancient world attracted his especial interest. He has given a report of his journeys in Greece, and published a glossary and commentary on Aristophanes following the comedies of the Greek classic authour almost line for line with well-chosen explanations and translations of all the expressions and idioms that are difficult to understand.

"But Hirschberg's monumental work of recent years is the history of his special science, for which he also compiled a model dictionary. In 1899 he published the history of ophthalmology in ancient times following it by the history of this science among the Arabs. With two noted Arabian collaborators, he compiled the material with reference to Arabian ophthalmologists in a special work in two parts. Hirschberg followed this with the history of ophthalmology in the middle ages and into the beginning of modern times, describing its renaissance in the eighteenth century. This volume has been translated into French. The final volume, which appeared last year, treats of the ophthalmologists of Germany in the first

half of the nineteenth century. What Hirschberg has accomplished in practical ophthalmology with his literary publications may even now be estimated. A selection of his works was published a few days ago.

"I shall further call attention to his articles which appeared in 1869 on medullary cancer of the retina, on the electromagnet in ophthalmology for removal of splinters of iron from the interior of the eye, which has rendered innumerable operations unnecessary, his work on the treatment of myopia, and his articles on the statistics of blindness, on tumors of the eye, and the measurement of the field of vision. Hirschberg is the founder of and from 1877 to date has been the editor of the *Zentralblatt für Augenheilkunde*. Many ophthalmologic societies have elected him an honorary member and he is the president of the Berlin Ophthalmologic Society, corresponding member of the Paris Academie de medicine and an honorary doctor of the University of Athens. On his seventieth birthday, a portrait bust of Hirschberg was installed in his clinic."

UNIVERSITY OF LIVERPOOL, DIPLOMA IN OPHTHALMIC SURGERY.

A diploma in Ophthalmic Surgery (D. Ch. O.) has been instituted for candidates who possess a qualification or diploma in medicine which entitles to registration in the United Kingdom. The examination for the diploma will be held twice a year, at the end of the summer and autumn terms. Candidates before presenting themselves for examination, and subsequent to having obtained a registrable qualification or diploma must have attended: (a) a three months' course of study in the anatomy, physiology, and pathology of the eye in the university; (b) a course of instruction extending over not less than three terms in an ophthalmic clinic recognized by the university; and (c) a course of lectures on the diagnosis and treatment of diseases of the eye during one term. The subjects of examination are: (1) The anatomy and histology of the visual organs and centers: (2) the physiology of vision: (3) physiological optics: (4) bacteriology in relation to diseases of the eye: (5) the morbid anatomy of diseases of the eye: (6) the diagnosis and treatment of diseases of the eye: (7) the estimation and correction of errors of refraction. The fee for the examination is five pounds, five shillings, and for each

subsequent examination three pounds, three shillings. The fees for course of instruction amount to 25 guineas.

(LANCET.)

STAFF APPOINTMENTS, COOK COUNTY HOSPITAL,
CHICAGO, ILL.

By examination open to citizens of the United States: appointments for six years; service continuous throughout the year; no salary; this hospital admits 34,000 patients yearly; reorganized on the highest grade of the foremost American and European hospitals; examination December 22, 1913, in the Department of the Eye. Address Cook County Civil Service Commission, Chicago, Ill.

BOOK REVIEW.

The American Encyclopedia and Dictionary of Ophthalmology. Edited by Casey A. Wood, M.D., C.M., D.C.L. Volume I: A to Azoviolet. Cloth. Price, \$6. Pp. 727, with illustrations. Chicago: Cleveland Press. 1913.

Of making books there is no end; but, till this ambitious volume, there had never been even a beginning of any attempt at a comprehensive, truly exhaustive exposition of ophthalmology in English. Text-books indeed have appeared in English from time to time, some of much, and more of little, worth. Quiz-compendes have been known to exist. Numerous periodicals have been published—annals, journals, archives, records, etc.—in general, have held their own with similar publications in German, Italian and French. Then, finally, appeared the Norris and Oliver "System of Diseases of the Eye," in four quarto volumes, extremely useful even now. But even that systematic treatise exhibited lacunae. It told us, for example, much of ophthalmology, but nothing at all of ophthalmologists. It showed, in a highly commendable manner, the ophthalmic practice of the day in which it appeared, but nothing whatever of the earlier stages of this slowly developing art—it exhibited, in other words, all the modern flower and fruitage, but absolutely nothing of the rough medieval trunk, or of the strong ancient roots, which, for sustenance, dipped far down into a humus of philosophy and religion. Then, too, in matters of refraction and accommodation, in ocular innervation and motility, as well as in a thousand lesser matters, like

the accommodometer, the angulometer, the Aleppo button, and ophthalmologic chemistry and botany, the "System" of Norris and Oliver was most decidedly defective.

The French have done better. They have their "Encyclopédie française d'ophtalmologie"—nine goodly volumes that cover the major portion of the subject of ophthalmology, though omitting a number of extremely important matters.

The Germans have done better still. They produced, as a kind of beginning, the first edition of the Graefe-Saemisch "Handbuch der gesammten Augenheilkunde"—not so much a handbook, by the way, as a heavy, double armload of very extensive treatises. Then, patiently, and after the fashion of the great Teutonic investigators and writers—a fashion which will sooner or later be followed in this land of too many short-cuts—the Graefe-Saemisch editors and contributors set to work on a monumental "Zweite Auflage"—an enormous production which is still in the course of publication. Unfortunately, however, so extensive and so unrelated are the numerous parts of the "Zweite Auflage" that the reader has great difficulty in finding anything in it, and will continue to have until the work is complete and furnished with an index.

There was also a German Encyclopedia of Ophthalmology—excellent, too, but ill-starred. It went to about the letter M, since which nothing has appeared.

This is the first volume of an American attempt of similar character—an attempt which, we believe, is also the first of its kind in the English language.

The work is planned to appear in ten octavo volumes, each of seven or eight, or possibly nine, hundred pages, and then, at the close, an appendical volume, in which will be comprised, chiefly, such discoveries of importance in the field of ophthalmology as happen to have been made too late to be included in any of the earlier volumes.

The volume now before us—a well-bound, well-printed, beautifully illustrated production—is devoted entirely to subjects that begin with the letter A, and the comprehensive character of the work as a whole is well shown by the opening article of this the opening volume—"A": "Just as in modern times one often uses the initial letter of the name of a patient whose identity one desires to conceal, so the ancients occasionally employed the same device." The article thus begins and then goes on to relate the anamnesis and case report of an ophthalmic patient dead more than twenty hundred years.

But the case is illustrative of ancient ophthalmic temple-practice, and so it is admitted to the book. The final article in the volume is entitled "Azoviolet," the name of a certain tint used now and then in spectacle lenses.

Between these two articles lie hundreds of others, varying, of course, in value, but, for the most part, scholarly, and so clearly, often so picturesquely, written as to be of the utmost interest alike to specialists and general practitioners. Among the contributors to the volume are Jackson, Allport, Frank, Würdemann, Ball, Beard, Rochester, Zentmayer, Gradle, Shastid, Posey, McKee and, indeed, nearly all the other men who have made American ophthalmology what it is. None but American (including, of course, Canadian) ophthalmologists contribute to the volume or to the series.

Aside from his work as one of the contributors, Dr. Wood is to be cordially congratulated—still more, the world of ophthalmology—on the masterly editing exhibited throughout the volume. The fine coordination of article with article, in works of an encyclopedic character, is never the result of happy accident.

Whether or not the standard erected by Volume I of this Encyclopedia is to be attained by succeeding volumes, the initial effort of the series will indubitably stand as a credit to American scholarship and American literary style. There should be more works of a similar character devoted to other specialties.—*J. A. M. A.*

REPRINT NOTICES.

Discussion on Retinal Vascular Disease: Pathological Aspects. By George Coats. (With Plates I and II.) Reprinted from the Ophthalmological Society's Transactions, Vol. XXXIII, 1913.

Two Cases Showing a Small Superficial, Opaque White Ring in the Cornea. By George Coats. Reprinted from the Ophthalmological Society's Transactions, Vol. XXXIII, 1912.

Pathology of Obstruction of the Central Artery of the Retina. By George Coats. Reprinted from the Royal London Ophthalmic Hospital Reports, Vol. XIX, Part I.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.) G. W. Mahoney (Poli.)	*Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.) Brown Pussey, N.W.U Every day, 10-12 A.M.	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E.E.N.T.)	J. R. Hoffman (E. E. N. T.)	A. G. Wippert (E.E.N.T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E.E.N.T.)
1 P.M.	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	.....	Willis O. Nance (C.C.S.)	.....	Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) Wm. E. Gamble (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) *H. W. Woodruff (Rush) *H. W. Woodruff (Inf.) N. A. Young (P. & S.) Francis Lane (Rush) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisler (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) *H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Alport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (P. & S.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) *H. W. Wilder (Rush) N. A. Young (P. & S.) J. B. Loring (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	W. Allen Barr (C.C.S.)	W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pussey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honore Streets, Ills. Med.	Abbreviations: Poli.: Chicago Polyclinic and Hospi- tal, 174 E. Chicago Avenue, P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street, N. W. U.: Northwestern University, 2431 Dearborn Street.	Rush: Rush Medical College, W. Harrison and Wood Streets, St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
---	--	--	--

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XXII

CHICAGO, DECEMBER, 1913

No. 12, New Series

COMMISSION ON THE CONSERVATION OF VISION: REPORT OF THE CHAIRMAN.*

BY WILLIAM CAMPBELL POSEY, M. D.

Philadelphia.

The resolution which was passed by the House of Delegates at the last session of the state society, establishing a Commission for the Conservation of Vision, specified that its personnel should consist of ten ophthalmologists appointed by the president of the society, and of ten lay members, who should be selected by the medical representatives upon the commission. In compliance with this ruling, at a meeting held in Philadelphia shortly after the adjournment of the society, the ophthalmologists requested the following gentlemen to serve in the capacity of lay advisory members, and were fortunate enough to secure their acceptance: J. George Becht, secretary of State Board of Education, Harrisburg; Samuel T. Bodine, president of U. G. I. Co., Broad and Arch Sts., Philadelphia; O. H. Burritt, School for Blind, Overbrook; Frank Miles Day, architect, 925 Chestnut St., Philadelphia; A. C. Dinkey, president of Carnegie Steel Co., Pittsburgh; Theo. N. Ely, (Penna. R. R.) Morris Bldg., Philadelphia; Louis C. Madeira, Madeira, Hill and Co. (Colliery Proprietors), North American Bldg., Philadelphia; I. P. Pardee, president of Hazleton National Bank, Hazleton; Col. J. M. Schoonmaker, president of Pittsburgh and Lake Erie R. R. Co., Pittsburgh; Benj. G. Wells, *Philadelphia Press*, Philadelphia.

As may be judged from the designations just given with the names of the gentlemen comprising the advisory board, the ophthalmologists have at their command the co-operation of a committee representative of interests vitally concerned with the work of saving sight, and are consequently much better

*Read in the Section on Eye, Ear Nose and Throat Diseases of the Medical Society of the State of Pennsylvania. Philadelphia Session, September 24, 1913.

enabled to study and devise means of relief, whether in connection with injuries received in manufacturing or mining industries, with the lighting of school houses, with the adoption of proper visual standards in railroad and maritime services, or with the care of the blind.

The commission has been fortunate, also, in persuading the chief health officer of the state, Dr. Samuel G. Dixon, to act as honorary chairman, thereby associating itself with his department and profiting by its valuable resources.

The chairman of the commission is of the opinion that, if success is to come from the many movements for the conservation of vision now being agitated over the country, it must primarily be through the initiation and guidance of ophthalmologists operating through the medium of their state societies, in conjunction with state health boards and laymen with allied interests. As many of you are aware, the Section on Ophthalmology of the American Medical Association has already taken steps to bring this movement under its jurisdiction, and it is expected that within the year plans will be formulated whereby each state may have a commission similar to that of Pennsylvania, with representation on a central board with headquarters in the offices of the American Medical Association.

To combat the various forms of ocular disease effectively and to aid in propagating the purposes of visual conservation, it is necessary that the ophthalmologists of this state should become more closely associated and that this Section on Eye, Ear, Nose and Throat Diseases should be developed into a compact and active ophthalmological society. There was passed, at the last meeting of the Legislature, a bill making the report of all cases of ophthalmia neonatorum compulsory, an indispensable measure in the fight against this most frequent cause of blindness. What will be accomplished, however, if, following the report of cases to the health authorities, prompt ophthalmic treatment is not available? No medical practitioner, unskilled in the treatment of ocular disease, is competent to treat purulent conjunctivitis, and some plan must be evolved whereby the health authorities can command the services of ophthalmic surgeons, so that the report of a case of ophthalmia neonatorum by the physician or midwife in charge shall be followed by the immediate attendance of an ophthalmologist. There are competent ophthalmic surgeons in every county, and

it would not be difficult for the State Health Department to organize a corps to work in conjunction with it. The commission has data at its command which would greatly facilitate the formation of such a body.

Another member of the commission, Dr. Holloway, will speak of the prevention and treatment of ophthalmia neonatorum, in a separate paper, at this session of the society, so that it is unnecessary at this time to elaborate the plans of the commission in the crusade against ophthalmia neonatorum further. It may be added, however, that the commission will need the hearty co-operation of the entire profession in this fight, and trusts that at the next session of society it may be able to chronicle a marked decrease in the number of blind from this almost entirely preventable disease.

All active practitioners of ophthalmology must acknowledge the existence of fresh cases of trachoma within our commonwealth, and no one can truthfully assert that all that is possible is being done to eradicate this disastrous disease. The treatment we apply is only palliative in the vast majority of instances. By reason of too scanty indoor accommodations, most cases are treated as outpatients and, while undergoing treatment, are often infecting others. The former Committee on Trachoma, of which a present member of the commission, Dr. Franklin, was chairman, has called attention to the evils of trachoma in Pennsylvania and suggested measures for its relief, so that an extended reference to the subject is unnecessary. The chairman of the commission believes, however, that active measures should at once be taken against the disease, and suggests the establishment of hospital schools, similar to those so successfully operated by the London Charity School Boards for the treatment of children with the disease. As stated by Dr. Franklin in a previous report, children are detained in these institutions long enough to insure the complete eradication of the trachomatous process and, while inmates, receive some training in the elementary branches of education, so that when they are discharged they are earning increments of the commonwealth, instead of being sightless charges upon it. Such institutions need not be large, as the number of affected children in Pennsylvania does not appear to be great, and could be economically administered in connection, perhaps, with some already existing state institutions.

The problem of the treatment of adults with trachoma is

unfortunately not so simple, nor can ever, perhaps, be so satisfactory, for it is impossible in the vast majority of cases to confine subjects of this age within a hospital sufficiently long to eradicate the disease. Males are usually affected and in most instances have families dependent upon them for their support. With the insistence upon the detention of such individuals within the hospital long enough to actually cure trachoma, the state would in many instances be obliged to provide for the support of the family deprived of its breadwinner, with attendant undesirable financial and social results. At present the most feasible plan of treating this class of cases appears to be the following: In treatment for a month or more, until the acute stage has passed and the secretion has disappeared. When the patient is discharged, the co-operation of some well-organized social service system must be evoked, for the purpose of accompanying the patient to his home and place of employment and explaining to his family and employers the nature of the disease, to warn them of its contagiousness and to demonstrate how the individual shall conduct himself at home and abroad so that he may avoid transmitting the disease to others.

In order to eradicate the disease from our state, it is desirable that the Health Department should obtain an approximate estimate of the number and location of all cases. The auxiliary corps of ophthalmologists, which it is suggested the department associate with it in the campaign against ophthalmia neonatorum, might be used with advantage in this connection.

With this information at hand and a definite idea obtained of the extent and locality of the disease, it is believed that an adherence to the above plan of treatment would, within a few years, almost completely eradicate trachoma from Pennsylvania. It goes without saying that the same official exclusion of trachomatous immigrants should be practiced as at present, and a sharp lookout maintained for all fresh foci of infection.

Notwithstanding the safeguards adopted by many manufacturing industries in the state, the number of eyes lost by avoidable accidents is still very large. Radical measures will be necessary before the number of such cases is lessened. It is the purpose of the commission to devote particular attention to this subject, and it is believed that splendid results will follow from the co-operation the commission will receive from its advisory board, many of whom are employers of large numbers of laboring men peculiarly liable to ocular injury.

Most of the time and efforts of the commission during the past winter was spent in the fight against the so-called "Optometry Bill," which resulted in the defeat of that pernicious measure in the Legislature by a vote of 60 to 115. The people of this commonwealth have again been saved from the evils consequent upon the passage of such a bill, and the commission desires to express its thanks for the aid which it received from the profession at large and from many leading legislators, in obtaining the defeat of the measure. The Section on Ophthalmology of the American Medical Association has appointed a committee to seek a solution of the vexed optometry question for the country at large, and it is hoped that before the next Legislature meets, a plan may be adopted which will render futile forever the pretensions of mere opticians to be practitioners of ophthalmology.

In sympathy with the movement inaugurated by Jackson, of Denver, for a higher standard of ophthalmology in America, the commission, through two of its members, Drs. Reber and Zentmayer, has urged a longer course of study in ophthalmology in the postgraduate schools. The chairman is of the opinion that the study of ophthalmology should begin in the undergraduate medical course, and that by a system of electives, certain branches which have but slight bearing upon ophthalmology should be substituted for others of more importance in ophthalmic practice. Ophthalmic science is not progressing in America *pari passu* with some other branches of medicine, and an active movement looking to its advancement should be begun in all ophthalmological circles.

An important precautionary measure established by the commission has been the installation of placards in all the golf clubs of the United States, by action of the president of the National Golf Association, warning all golfers, caddies and others who might be exposed, of the danger to sight which frequently follows cutting into golf balls. As pointed out by the commission to the National Golf Association, a dozen or more eyes of American golfers and their children have been either lost or seriously injured by the explosion of balls, following an investigation of their contents by cutting into them, certain balls being charged with a highly explosive substance, with strong cauterizing properties.

An investigation must be made regarding blindness from wood alcohol poisoning. In the report of the New York

Association for the Blind for the year 1912, seventeen new cases of blindness and death from wood alcohol poisoning were reported during the year, and there is reason to suppose that an almost equally large number occur in Pennsylvania annually. The New York society has instituted an active campaign against this evil and the Pennsylvania commission proposes to do likewise.

Before any movement looking to the betterment of social conditions can be a success, it is essential that those who are to receive the benefits should understand the necessity for them and should be eager to receive them. It will not be difficult to enroll the ophthalmologists of the country into an efficient organization for conserving vision. A far harder task will be the enlightenment of the public regarding the manifold phases of the subject. Parents must be taught the dangers of ophthalmia neonatorum and the possibility and manner of its prevention. Employers and employed must be made to appreciate the necessity of safeguarding sight, not only from a humanitarian but also from an economic standpoint. The state must learn what a drain on its treasury the education and care of the needlessly blind entails, and most of all, the public at large must be made to appreciate how much science and intelligent care can do, not only in preventing blindness, but in increasing the efficiency and comfort of individuals. With this end in view, the commission has established a State Society for the Conservation of Vision and is soliciting membership, not only from members of the profession, but also from lay men and women. The annual dues have been fixed at one dollar, it being the intention to disburse whatever money may be received in this way in distributing literature and in preparing charts and pictures which may be used in lectures explaining the work of the commission. It is hoped that every ophthalmologist in the state will become a focus of coöperation in this movement, for it is time that the ophthalmologists of Pennsylvania should awake to the responsibilities confronting them as altruists and social economists, and should appreciate that our duty lies quite as much in the prevention of ocular disease as in its treatment.

THE VISUAL REQUIREMENTS IN RAILWAY AND TRACTION SERVICES; AND THE PROTECTION OF THE EYES OF WORKMEN IN LARGE SHOPS.*

BY BURTON CHANCE, M. D.,
Philadelphia.

Introduction. In these days of Federal inquiry into certain details of the management of railways, and of interstate-commerce regulation, as well as inspection by public utilities commissions, it would seem proper for so influential a body as the Medical Society of the State of Pennsylvania to consider and make well known just what provisions have been made by the railways of Pennsylvania for the maintenance of the highest visual standards for all employees connected with the road service: and at the same time, since the various states are formulating laws for the protection of workmen from injuries consequent to their employment, it may be quite as appropriate for us to call attention to the efforts that are being made to increase the visual efficiency of workmen in the great shops throughout the state, and the means that are taken to protect their eyes from injury.

Railways. Ten years or so ago the American Railway Association adopted a set of rules "governing the determination of physical qualifications of employees," placing, as of the first importance, the requirements relating to the vision and color perception of those employed in the operating department. These rules were agreed to by the great roads in this state, and they have been maintained persistently and conscientiously throughout the several systems. The effect has been to increase the human efficiency of the road service as well as to maintain a greater safeguarding of the public.

Since the death of that distinguished pioneer in the study of color blindness among railway employees. Dr. William Thomson, I have been associated with the Pennsylvania Railroad Company, and have the honor to serve as its ophthalmic surgeon. My opportunities for observing the working out of such well-organized regulations have been particularly favorable, in so far as they concern those whose duties required them to use signals, or to distinguish the position or color of signals.

*Read in the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, Philadelphia Session, September 24, 1913.

In the "Pennsylvania," all applicants for employment must pass a satisfactory examination before entering the service, and in that examination it must be developed that the subject has sufficient acuteness of vision, without the aid of glasses, to see the prescribed signals and clearly to distinguish the colors of them. At the end of five years each employee is again examined, and after reaching the age of forty, he is re-examined every two years. In these later examinations the man may wear glasses; and employees whose vision and color perception may have become, or is likely to be immediately, affected through accident or sickness must pass a satisfactory examination upon recovery. All candidates for promotion to the position of conductor or engineman must pass a complete and satisfactory physical examination as well as the technical tests.

These examinations are conducted by certain members of the medical department and by skilled laymen, appointed for that purpose, whose duty is confined to that of examination: they test the men by outside, or field, tests, as well as by those conducted best indoors.

All cases, in which there is the slightest question or doubt as to the subjects' visual qualifications, are referred to the ophthalmic surgeon. His decision determines the physical qualifications of the employees. His opinion and ruling becomes the deciding factor in the case even to the rejection of the employee from the service.

The color tests pursued by the division examiners consist of the field-recognition of flags, train lights, hand lanterns, and distant colored lights; while the indoor tests comprise the colored wool-skeins as devised by Dr. Thomson and the special Thomson lantern. In cases of doubt or confusion the man is referred to me, or he may appeal for a more extended examination, which includes the skeins, lamps, and the spectroscope.

Employees who are defective in color perception are not employed in positions which require them to use signals or to determine the color of signals, neither are those whose visual defects are such as can not be corrected by glasses employed in the service.

Employees whose duties require them to distinguish the signals and whose vision requires the use of glasses are compelled to wear their glasses. They must provide themselves with duplicate pairs of spectacles, and never appear for duty

without them. Every effort is made to compel the men to consult qualified oculists and not simply to purchase their glasses from spectacle sellers.

The requisites for acuteness of vision in the several classes are as follows:—

A. For enginemen, firemen, conductors, brakemen in yard and road service, train baggagemen, yard masters and switch tenders: At entrance, 20/20 in one eye and not less than 20/30 in the other, without glasses. For promotion, 20/20, and not less than 20/30 in the other. Reëxamination for those in service, 20/30 and not less than 20/40.

B. For interlocking levermen, signal repairmen, lamp signalmen, station agents, operators, crossing and bridge watchmen: At entrance, 20/20 and not less than 20/40 without glasses. Reëxamination in the service, 20/30 and not less than 20/50.

C. Other employees in the engine, train or yard service, car and engine inspectors, hostlers, bridge and track foremen: At entrance, not less than 20/30 and 20/40 without glasses. Reëxamination 20/30 and not less than 20/50.

D. Street crossing watchmen and policemen: At entrance, 20/40 with both eyes open, without glasses. For promotion, 20/50 with both eyes open.

All railways are not so exacting nor are their examinations so rigid as are those in Pennsylvania. It is not often, therefore, that a man afflicted with organic disease of the nervous system escapes discovery in the lines of this state; I have known of cases of paresis and epilepsy occurring among enginemen in roads elsewhere. The frequent and regular repetition of the visual examinations after the age of forty is calculated to discover serious physical changes, should they be latent, in the engineer or fireman, and the burden of the discovery lies quite heavily with the ophthalmologist. The carefulness of the medical department of my own company in preventing a sick man from returning to work, on his recovery, without re-examination, has done much to protect the traveling public as well as the railway company, and the men themselves, from the dangers attending the service of an inefficient employee. Such requirements therefore are not too restrictive in spite of the protests of the employees' unions; for the railway companies are seeking only to increase the efficiency of the tests in the interests of public safety.

Electric and Trolley lines. The high-powered electric lines maintain strict regulations for both sight and color vision, based on tests comparable to those maintained by the steam roads, and the electric trolley lines in the large cities are adopting regulations for the examination of the sight of the car men. One company, in Pittsburgh, "examines all men at the

time of hiring, and practically normal vision is required for motormen while not less than 16/20 is expected from conductors. The conductors may not transfer to the front end unless their vision is at the standard."

The Philadelphia Rapid Transit Company requires a high standard of vision for motormen who may not use glasses, and for conductors who may use glasses. In the subway service and in the suburban lines, where colored signal lights are used, the carmen, signal men and signal repairers are subjected to color tests by the wool skeins and Thompson's lamp.

And so does another high class suburban trolley running out from Philadelphia, rigidly exclude men who can not pass the tests for sight and color. Motormen who have been in that service several years may wear glasses, if with them they can meet the tests. All men in the operative department are regularly examined at stated intervals, annually, and the record cards are carefully preserved. On this line the union switch and signal semaphores are used. On a line in the center of the state (Harrisburg) the car men and signal repairers are tested as to color sense and visual acuity; they may wear glasses if the correction brings their sight to the standard.

Safety. Most of us who attend on the staffs of hospital services near the large industrial works are apt to become impatient after a series of cases of destroyed eyes have been received, and, inveighing against them, pour out our wrath and declare that such accidents could not have occurred had there been sufficient protection offered the workmen. And, yet, a visit to a modern steel works, as for instance one subsidiary of the U. S. Steel Company, the Pennsylvania Railroad shops, Baldwin's or the Midvale, will disclose how many precautions are taken to prevent accidents in general and for the protection of the eye in particular. The "red ball of danger," the "universal danger sign" is everywhere, and large legible signs in all languages are placed conspicuously to point out dangers and to warn the men of their duty to themselves, to their fellows and to the company, in helping to prevent accidents of all kinds. There are no excuses there for "spalls" and "chips." "Do not work with unsafe tools. Tell your foreman," reads one; "The proper inspection of tools by employees using same will help to prevent accidents," reads another; and "Every employee whose duty requires him to work with appliances of any kind must carefully examine same and report defects."

And this warning to the man seeking employment, "Unless you are willing to be careful, to avoid injury to yourself and fellow workmen, do not ask for employment. We do not want careless men in our employ." I speak of these details because we, ourselves, and the public should know that for several years past the large companies have been carrying on an active campaign for accident-prevention, for which many kinds of safeguards for the protection of limb and life have been devised and are in constant use. "Bureaus," or "committees of safety" or "welfare," have been established in the separate works for the purpose of preventing accidents as well as for the care of workmen when injured.

In steel plants the dangers of injuries to the eye arise from several different sources, in the chipping of castings and other metals, in the handling of molten metals, while grinding metal on emery wheels, in pouring Babbitt metal, during the use of the electric-arc at blast furnaces, and while using electric-arc welders. Against such dangers, the men who are employed as chippers in the casting yards, are urged to wear goggles, and when men are doing heavy chipping they are provided with wire face-masks. A great deal of effort has been made to get goggles that will be satisfactory to the men and not inconvenience them. The chipping-yard foreman makes sure every morning that each man is provided with a perfect pair and he urges him to wear them, after giving him complete instructions as to how they are to be worn.

Signs like this in the English and foreign languages, are posted in the yards warning the men of the danger of chipping without the eye protectors: "*Danger!* you are warned against working without eye protection and with battered tools. Get proper tools from foremen." Each man is provided with a pair of large plain glass spectacles or other goggles which he wears when he has occasion to do any grinding of metal on the emery wheel. Painted on the arm of the grinding machine is the sign, "Wear your goggles." He keeps the spectacles locked up when not using them; and he is not allowed to exchange his glasses with a fellow workman because of the danger of transferring diseases from one to the other. Over the tool rests are adjustable glass shields through which the man may watch his grinding with safety.

The goggles worn by the men while pouring molten metal are such as are used in the great mills in Germany but equally

as good ones have been made recently in this country. In this work the wearing of goggles is compulsory, and there are signs at the places where molten metal is poured to warn the men that if they do not wear the goggles while pouring metal they will be sent home. And in pouring Babbitt, splashes of which so horribly destroy whatever they light on, each man is required to wear goggles.

The electric arc is used to cut away iron work which has "frozen" in the "tuyeres" and in the tapping holes of the blast furnace. Face shields, like a huge piece of armor, in which are placed layers of colored glass, deep blues and reds, are provided for use as a shield and as a protection from the light. The men are instructed in the dangers of looking into such lights, the intensity of which, even for the briefest exposure, is so great as to cause great pain if not injury to the eyes. Men on an overhead crane have been incapacitated by the glare many feet below; they too are provided with protectors similar to large smoked goggles.

During electric-arc welding a shield, fitted with colored glass, is suspended in front of the workman so that he watches the work through the glass, and by it he is protected also from the heat. In some instances the man's entire person is shielded and he works in an enclosure which shields everyone else.

The companies have found that while the loss of time for one particular injury may not be great, yet, in shops where much grinding is done, the decrease in production from many such accidents in the course of a month may amount to so great an item that it can not be overlooked. Therefore appliances in the shape of spark shields and hoods are affixed to the machinery to arrest the flying parts of the abrasive and of the steel, although these offer no protection from the larger fragments that rebound from the tool rests or work. Many minor eye accidents and serious ones too, can be prevented by the use of grinding glasses and goggles in the grinding room, yet it is a singular fact that the men usually object to the use of goggles and it requires all the tact of the masters to overcome their objections to them. In one shop I saw seven men working on a great casting; each one was provided with goggles, yet four had them up on their foreheads! It is customary for most companies to provide the goggles and shields free of charge. Until lately most of the goggles on the market were cumbersome and uncomfortable. I have long believed that one of the objections

was based on their supposed interference with the wearer's sight, whereas their use made manifest the presence of an uncorrected ametropia. Those recently put forth with side guards are bowed out sufficiently to allow the use of spectacles, with the wearing of which much of the discomfort may be relieved.

Some of the shops have progressed so far as to insist upon a physical examination of new employees, including the testing of the eyesight, for they have learned that a man who does not see well at his work runs an exceptional risk of accident to himself and to his fellow workmen. He also works at a considerably diminished efficiency. It is therefore to the best interests of all concerned that workmen should not be permitted to work at hazardous occupations, if they have poor or defective sight. Accordingly the ametropes are compelled to wear correcting glasses. It is unaccountable that a man will refuse to wear his goggles when he knows of the destruction accompanying injuries, of the hopelessness in the case of perforating wounds with the retention within the eyeball of carbonized bits of steel or other non-magnetizable metal.

The presence of dust in the workroom is a serious menace not only to the general health of the workmen but also to the delicate conjunctival tissues. Several of the forms of goggles, especially those with fine wire mesh, or perforated leather side guards afford protection from dust. But the question of the removal of dust is a most serious one. Manufacturers have noted that the efficiency of the workmen can be increased by a plentiful supply of pure and fresh air, while bad and impure air, together with poor light, conduce to an unnatural mental and physical fatigue. Therefore, in many of the states, measures have been taken and acts passed, requiring the removing and collecting of dust arising from grinding, polishing and buffing. Many ingenious devices have been invented based upon suction-exhaust, by means of which dust and other particles are carried, away from the work bench or machine, to receptacles or out through the drain pipes. Side by side may be a wet and a dry machine. Ventilating fans and exhaust-drums are installed at convenient places to increase the light, and the windows are now cleaned every few days; a special platform, the "window cleaning trolley" has been built for the man who cleans the skylights.

Those of us who recall our visits to "iron foundries" in our youth will have all the romance attending those visits dispelled

on entering a modern "steel works." The huge dingy caverns with their grimy workmen groping in the darkness; the feeble flickering gas flames futilely expending their light, making everyone seem like unearthly creatures, have given place to fresh, clean, well-appointed workrooms, dust free and lighted by the daylight. It has been noticed that workmen complain that most of the accidents occur because of insufficient light; indeed it "is claimed that as high as twenty-five per cent. of all industrial accidents are traceable to poor illumination." Therefore, as electric lighting is easy of installation, lamps are dispersed around the shop, and drop lights, with shades to protect the eyes from the glare are suspended over the work benches.

It must be patent to all of us that the invention and supplying of these appliances ought to receive full consideration in the discussion of the subject of the employer's liability in cases of injury to workmen, for in spite of these costly and singularly ingenious safety-appliances, employers remain of the opinion that "most shop accidents are due to carelessness and disregard of shop rules." What sympathy or pity ought we to show to a skilled workman, who applies to us having a perforating wound through the ciliary region, with a lacerated and engaged iris, and, probably, a retained foreign body, who admits that his bench appliances are all protected, but that he did not deem it worth his while to use his goggles while clipping off a small fragment from the casting which he was trimming? And I can not conclude better than by stating in defense of employers who may be criticised because of accidents to employees, that it is well for us to accept what Vice President Atterbury of the Pennsylvania Railroad Company said recently, "The problem of safety is not altogether a question of rules and their enforcement, safety appliances and their application, but the development of inherent self-restraint and control;" and the pertinent remark of General Manager Long, of the same company, that "safety is fundamentally a habit of mind which may be acquired by all, through the exercise of ordinary caution and forethought in the small details of everyday duties."

Conclusion. The functions of the ophthalmologist have developed remarkably in the past decade; they have kept pace with other departments of medicine in regard to a deepening interest and a widening participation in what may be called

"state medicine." Two separate fields of observation in the daily practice of certain of us have here been detailed. They seem to bear no relation to each other. Yet both may present themselves for consideration at any clinic hour, forcing home to us their separate and yet allied positions in the department of preventive medicine. And, as these phases are important to our practice, so must their value be made evident in the recommendations of the schemes for the "conservation of vision." The one shows us what the "common carriers" are doing to protect the public on the travel highways, and the other shows how employers seek to protect their employees from blindness, and the employees and the public from all that blindness entails.

OPHTHALMIA NEONATORUM.*

BY T. B. HOLLOWAY, M. D., PHILADELPHIA.

While much has been written in reference to ophthalmia neonatorum, the action of the last Legislature, in passing the bill relating to the notification of cases of ophthalmia neonatorum and the bill regulating the practice of midwives, has added additional and much needed interest to this affection. To the general practitioner and to the oculist, especially if he be associated with a school for the instruction of the blind, ophthalmia neonatorum presents two very different aspects, and in this respect is somewhat analogous to syphilitic iritis as seen by the syphilographer and by the oculist. The former encounters iritis in but a very small percentage of his cases of syphilis, whereas the oculist finds in lues the most frequent etiologic factor in the production of iritis. So, the average general practitioner may see but one or, at most, several cases of ophthalmia in his private work in the course of a year, but these few cases contribute to making this disease by far the most frequent cause of blindness encountered in institutions for the instruction of the blind.

From an economic standpoint it is impossible to determine accurately the direct and indirect cost to the United States of ophthalmia neonatorum. Cohen¹ believes this amounts to a yearly expenditure of \$1,800,000. Mayou² writing in 1908, stated that in England it costs £350,000 to educate and care for the children blind from this affection.

*Read in the General Meeting of the Medical Society of the State of Pennsylvania, Philadelphia Session, September 25, 1913.

In Pennsylvania, the last Legislature appropriated \$99,300 a *year* to the two schools for the blind. In addition to this \$17,500 a year was appropriated to the Pennsylvania Working Home for the Blind: \$2,500 to the Pennsylvania Association for the Blind and \$4,000 to the Pennsylvania Home Teaching Society, making a total of \$123,300 appropriated by the state to these institutions or organizations for the blind. The Pennsylvania Working Home for the Blind also receives a *yearly* appropriation from the city of Philadelphia, of \$5,000. Of the amount appropriated by the state, *i. e.* \$123,300, \$31,500 is a conservative estimate of the amount devoted to the welfare of those blind from ophthalmia neonatorum. The yearly *per capita* appropriation for the pupils in the two schools for the blind in this state is approximately \$305.00 as contrasted with \$2.35, the *per capita* amount appropriated by the state to seeing children in the public schools. In other words, as far as the state is concerned it can educate 129 seeing pupils for what it costs to educate one blind child. From a purely commercial basis, this fact alone would warrant the passage of a law tending to the control of this disease, and also the right of the state to demand from those hospitals it so generously supports, suitable accommodations for the victims of ophthalmia neonatorum. The yearly cost of educating a pupil in the schools for the blind is approximately \$400.00, and this amount is slowly increasing. In Philadelphia, for 1912, the yearly *per capita* cost for educating the public school children in the elementary and high-school grades was \$34.71, while the approximate cost in many of the other counties in the state can be estimated at about \$18.00. We thus see that in Philadelphia about twelve seeing pupils can be educated for what it costs to educate one of the victims of ophthalmia neonatorum, while in many of the other counties this number can be easily increased to twenty-two.

With the coöperation of the physicians of the state, the new laws relating to this disease will place Pennsylvania in line with Massachusetts in its fight against ophthalmia neonatorum. The ophthalmia neonatorum bill requires that any physician, midwife, nurse or other person having the care of an infant whose eyes have become inflamed or swollen or reddened at any time within two weeks after birth, shall report the same in writing to the health authorities within six hours after the discovery thereof. Also that every physician, within forty-eight hours after he ceases attention upon such a case,

shall report the same to the commissioner of health, stating the condition of the infant's eyes. The midwifery bill requires that after January 5, 1913, all midwives shall be required to possess a certificate from the Bureau of Medical Education and Licensure and that this certificate shall be registered in the office of the prothonotary of the county in which the holder desires to practice midwifery.

I realize the increasing burdens that are being heaped upon the general practitioner in regard to medical and health laws, but most of the profession are broad minded enough to recognize that these regulations are an advantage to the state and are chiefly directed against the offending minority of the profession. Doubtless there are certain physicians, and some with large obstetric practices, who seldom see cases of ophthalmia, and there are even others to whom it may be a rare disease. To these the new law directed against this affection will not prove an inconvenience, and may even seem most unnecessary and inadvisable.

Now as to the prevalence of ophthalmia neonatorum. Frequently we see or hear stated that ophthalmia neonatorum is responsible for thirty per cent of the cases of blindness. This is a mistake, but at the present time it does approximately correspond to the statistics for the schools for the blind. Thus the Russell Sage Foundation report tabulated in December, 1912, shows that in twenty different state institutions for the blind, 29.3 per cent were victims of ophthalmia neonatorum. The incidence of the disease at the Western Pennsylvania Institution for the Blind for 1912, was 30.76 per cent, while our records at the Overbrook School covering a period of sixteen years gives an average of 31.6 per cent. There are really no available accurate statistics showing the number of citizens of this country who are blind as the result of this disease, but many who have especially studied this subject concede that ophthalmia neonatorum is responsible for not more than ten per cent of all cases of blindness. Last year, before this society, Heckel³ cited the most conservative estimate of approximately 1 per cent. (.99) deriving this from the figures of the 1900 census reports. I believe this to be much too small, as can be shown by the enrollment of 4575 pupils in forty-five institutions for the blind in this country.⁴ Accepting 29.3 per cent as a fair estimate for such institutions, we find that this would more than double the figures cited by Heckel, and probably would not include any one over twenty-five years of age.

or the many blind children not in attendance at these institutions. The incidence of the disease for other institutions, eye clinics, maternities, private practices, etc, necessarily varies. Thus, Stephenson⁵ found an incidence of 0.27 per cent for fifty-three Provincial Poor-Law Lying-in Departments and 0.47 per cent for over 900,000 cases treated in the eye-hospitals of this country. Sherman,⁶ among 45,708 cases occurring in the private practices of some fifty physicians of his acquaintance, found the percentage to be 0.35 per cent. In our own city, Tallant⁷ reports 0.96 per cent, or thirty-one cases of ophthalmia neonatorum occurring among 3225 births in maternity service of the Woman's Medical College. Of these 2275 occurred in the outpatient department where the incidence was 0.35 per cent., as contrasted with 950 births in the hospital, with a percentage of 2.84. Some seven years ago I found that among 1076 births occurring in Blockley there developed twenty-four cases of ophthalmia, or 2.2 per cent.⁸ Harmon⁹ has recently provided some interesting data. In March, 1911, ophthalmia neonatorum was made a reportable disease in London. For the next nine and a half months, 673 cases of ophthalmia developed among 100,830 births. Calculating these figures for a whole year Harmon determined an incidence of 0.843 per cent., which corresponded almost exactly with previous statistics obtained by him from 12,680 births occurring in private practice, the percentage here being 0.867.

Now what do these figures mean when applied to Philadelphia and the state of Pennsylvania, in other words what may we expect from the ophthalmia neonatorum bill if the cases are consistently reported or the bill enforced. In Philadelphia in 1912 there were 41,181 births reported and of these 9,312, or 22.6 per cent., were reported by midwives. If we accept Harmon's London average of 0.85 per cent. as applicable to Philadelphia, there developed in this city, in 1912, 352 cases of ophthalmia neonatorum, or, to put it in other words out of every 117 children born, one child developed ophthalmia. The number of births in the state for 1912, so far recorded, amounts to 211,639, and from these we could expect 1,798 cases of ophthalmia neonatorum. Considering the rural districts this may be too high, but on the other hand the foreign population in this state is large, and as a consequence the midwife is much in demand. Certainly 1,500 would be a very conservative estimate. As far as I can determine, this estimate is what

may be expected if the cases of ophthalmia are reported, but it is interesting, in this respect, to recall the experiences of another state, namely Massachusetts, where an ophthalmia law was passed in 1905, but was indifferently active until 1910. At this time a physician was prosecuted by the Boston Board of Health and a conviction obtained. Before the conviction, the number of returns for the month had been but 10; the month after, the number was 20. The next month, there being no prosecutions, the number fell to 10 but as the result of new prosecutions the numbers increased during the next four months to 15, 32, 97 and 116 respectively.

Prophylaxis and Notification. Whether compulsory prophylaxis would be advisable and the opinions that have been expressed for and against such a procedure will not be discussed. As to the notification of the disease, it is difficult to see how this can be objectionable either to the profession or to the public, and if it be associated with other procedures later to be referred to, it will do much towards bringing about an incidence for this disease that is consistent with our present knowledge and facilities for preventing its development. It is now quite generally known that many of these cases are nongonorrheal in origin, and for reasons that are obvious, the proportion of gonorrheal cases both in and out of institutions, necessarily varies according to the social and moral character of the patients. From the studies of Stephenson, Mayon and others, it is safe to assume that 60 to 65 per cent. of the cases owe their origin to a Neisserian infection, although some recent writers, for example, Sattler, concede but 50 per cent. It is not necessary to refer to the dozen different organisms that have been held responsible for the nongonorrheal cases. Likewise any reference to the so-called inclusion bodies may be omitted. We thus see that many of these cases may be regarded as cases of purulent ophthalmia analagous to those seen in association with some of the infectious diseases of childhood.

During the past few years, much publicity has been given to this disease and will continue to be given to it by various members of the medical profession and various municipal and charity organizations, and I believe the time is coming when the physician who fails to use some prophylactic measure, for fear of offending the moral sense of his patient, will have his timidity to thank for his humiliation when he is asked, why the infant's eyes were not properly treated at the time of its birth.

Certain observers do not hesitate to say that ophthalmia is, under certain conditions, as prevalent in the practices of physicians as in those of midwives. For example, Wootten,¹⁰ writing in November, 1911, stated that, owing to the rigid supervision of midwives in New York City, by far the greater number of cases of ophthalmia occurred in the practices of physicians than in the practices of midwives. Similar statements have been made by other observers in this country and in England.

Much good has resulted from the gratuitous distribution of prophylactics by different health authorities, and the proper instructions of midwives in the uses of these remedies. In as much as the Midwifery Bill places absolute control in the hands of the Bureau of Medical Education and Licensure, we may feel satisfied that the question of proper prophylaxis and subsequent caring for the cases of ophthalmia will be adequately dealt with. This statement also applies to the better training of midwives, a subject that received attention several years ago, from our present director of public health and charities, Dr. Neff, but owing to unfavorable legislation, work along this line was necessarily discontinued.

As far as the general practitioner is concerned, prophylaxis against ophthalmia should begin during pregnancy, and I know of no better way to treat this subject than to refer to the painstaking and admirable monograph by C. C. Norris, on "Gonorrhea in Women," where this whole subject is thoroughly discussed.

As to the prophylactic remedies to be used at birth, I believe nitrate of silver to be the most reliable, and a one per cent. solution of this should be used by the physicians in all cases in the presence of the gonococcus or in suspected cases. The organic silver preparations, protargol and argyrol, have also been used, and in the past few years very favorable reports have been published as to the efficiency of sophol in five per cent. solution. With this preparation, however, I have not had any personal experience. Many other preparations have been variously advocated and employed. Among these may be mentioned boric acid, bichlorid of mercury (1-6000 to 10,000) and permanganate of potassium (1-3000 to 5000), and these may be conveniently used with a soft rubber ear syringe.

During labor, the danger of infection increases with the progress of this process. Stephenson¹¹ accepts Mules' statement

that infection frequently occurs during the second stage, being brought about by the direct action of the perineal edge. As the result of direct transmission of infectious material to the eyes by one way or another, late infections occur despite the utmost precautions. Although the gonorrheal cases are prone to develop within the first few days after birth, it may be well to call attention to the fact that some of the later infections may also be gonorrheal, a fact to which Williams¹² has especially called attention.

I have no intention to dwell upon the treatment of these cases, the details of which can be found in any textbook on ophthalmology. However, several points may be emphasized: first that immediate treatment and cleanliness in keeping the eyes free from pus are very important factors in securing favorable results. Further, the essential danger from this disease is the development of corneal ulceration, and trauma may be a factor in establishing its onset. This may be brought about by the hands of the infant or by rough or unskillful handling of the eyes at the time of treatment. Gentleness is absolutely necessary. Any one who has attempted to handle the tense, swollen, and unusually moist lids, knows how they tax the ingenuity of the most skillful fingers. Careful examination of the cornea should be made at each visit, and when this can not be safely and satisfactorily accomplished by the physician in attendance, an oculist should be immediately called to his assistance; he is needed at that time more than after perforation of the cornea and loss of the eye has occurred. While immediate treatment is a very important factor in the successful termination of a case of this character, we frequently hear the statement that if these cases are placed under treatment before the onset of corneal disturbance, the eye can be saved. This is doubtless true in a large majority of the cases, but I believe in this disease as in most others, that we are prone to have a mortality; here, I refer to ocular mortality, the result in some cases being influenced by the nutrition of the infant. Finally, the case should be kept under observation until a permanent cure and negative microscopic reports have been obtained; and in regard to this it may be mentioned that it is not safe to rely upon one negative microscopic examination.

We will concede that many of these cases can be properly treated in the home, and in other instances that it would be most unwise to separate the infant from its mother, but at times

cases are encountered where, owing to the ocular, domestic and other conditions, the infant is badly in need of hospital care. What privileges do the hospitals of Philadelphia and elsewhere in the state concede to these patients, of whom a large number have a disease no more infectious, and just as serious to the individual and state as many of the patients treated without question in some of the wards of all our hospitals? The Philadelphia General Hospital or Blockley has always accepted these cases, although recently it has not been permitted to use them for teaching purposes. With the exception of Blockley, I wrote the thirty-five general hospitals, and eight of the special hospitals referred to in the excellent report of the Committee on Municipal Charities of Philadelphia,¹³ concerning their attitude toward cases of ophthalmia neonatorum. Ten failed to reply, and of the remaining forty-two, but two made an unqualified statement that they would accept cases of this character. Excepting the summer months, another hospital has taken those cases referred by the attending ophthalmologist. Three other hospitals have occasionally taken them where it was regarded essential by the attending ophthalmologist, but they are prejudiced against them. Four others will only accept them as private cases with one or two special nurses. The remaining hospitals, will not accept them under any circumstances. Excluding Pittsburgh, I wrote fifty-three hospitals scattered throughout the state; eleven failed to reply. Of the remaining forty-two, sixteen admitted them as ward or private cases; thirteen as private cases only, many demanding special nurses; while in thirteen they were not accepted, and in the majority of this last group no other hospital existed in the community. Finally, no accommodations are provided for these cases in the only hospital in Philadelphia devoted exclusively to diseases of the eye.

In conclusion, what is necessary to make the ophthalmia neonatorum and midwifery laws effective? First, the rigid enforcement of these laws. Pennsylvania has had previous legislation against ophthalmia neonatorum, but it has always remained inactive. I have reasons to believe, and have still greater hopes, that such will not be the case with the present law. Second, the free distribution of a prophylactic and the training of midwives in its proper use. Pittsburgh has already adopted such a procedure. Third, the establishment of the "follow up" system so advantageously used in Boston. In this

way the care of the cases reported could be supervised, the domestic conditions investigated and appropriate action taken. The establishment of a municipal social service as recommended by the Committee on Municipal Charities would be of the utmost value in assisting in this work. The social service at the University Hospital has been used in such cases with most gratifying results and I dare say the same is true concerning other hospitals where such service is available. Fourth, make it mandatory to report all births within twelve hours and upon the receipt of this report forward to the parents printed instructions concerning ophthalmia neonatorum. This would serve the double purpose of being both practical and educational. Fifth, in the report of the committee above referred to, it was recommended that the city be divided into thirty districts according to its population, and that all accident cases within a defined area be sent to a designated hospital. Some such plan might be adopted for cases of ophthalmia neonatorum, and I believe suitable arrangements could be made by the health authorities with the ophthalmic staffs of the hospitals, to supervise the treatment of appropriate cases that might develop in their particular districts. This would place these cases under the observation of oculists, where I believe they belong. Sixth, the providing of suitable hospital accommodations for those requiring such treatment.

While it is necessary that the laity should thoroughly understand that this affection is often caused by organisms other than the gonococcus, nevertheless, before we can obtain the results that all of us hope to achieve, some practical and suitable method must be adopted to prevent the dissemination of gonorrhea.

¹*Illinois Med. Jour.*, 1912, p. 415.

²*The Practitioner*, 1908.

³*A. MED. JOUR.*, 1913, XVI., p. 278.

⁴The Pennsylvania Institution for the Instruction of the Blind. Overbrook, Philadelphia. Eightieth Annual Report, 1912, p. 48.

⁵Ophthalmia Neonatorum. Middlemore Prize Essay, 1907.

⁶*Jour. of the Med. Soc. of New Jersey*, 1910.

⁷*Amer. Jour of Obstetrics*, 1912, LXVI., p. 866.

⁸*Jour. of the A. M. A.*, 1907, XLVIII., p. 1251.

⁹*British Med. Jour.*, May 24, 1913, p. 1099.

¹⁰Bulletin of the Department of Health of the City of New York. Nov., 1911, p. 254.

¹¹*The Lancet*, Nov., 1912, p. 1358.

¹²Cited by Cutler, *N. Y. State Jour. of Med.*, 1912, XII., 572.

¹³Report of the Committee on Municipal Charities of Philadelphia, 1913.

REPORTS OF SOCIETIES.

BRITISH MEDICAL ASSOCIATION.
SECTION OF OPHTHALMOLOGY.

JULY 24, 1913.

(Continued.)

The obvious endo-nasal disease should be treated, but he thought that the chronic ethmoiditis which Kuhnt and Bunzlow had shown to be the most common cause, was best left alone. He shortly described Toti's operation which he thought to be exceedingly difficult, and only appropriate to certain cases.

Colonel Elliot, I. M. S. (Madras) said that the peculiar local conditions present in India made any lengthy treatment impossible. This, and the special nature of the disease met there, in which trachoma played an important part, made extirpation necessary in the vast majority of the cases. He described his operation, emphasizing the importance of never losing touch of the anterior lacrimal crest. He considered the operation an easy one, and his results, embracing nearly 1,000 cases, gave him every reason to be satisfied with the procedure.

Mr. Charles Higgins (London) had performed Toti's operation twice. He was satisfied that it marked an improvement in the treatment of the disease. He thought the operation a very difficult one to perform satisfactorily.

Dr. McReynolds (Texas) said that extirpation of the sac was gaining favor in America, but he himself had seen good results from probes, even from Theobald's, of the largest size.

Mr. H. S. Browning (London) thought that vaccines were exceedingly useful in these cases, especially when a phlegmonous condition existed. They were, however, useless when pneumococcus was the infecting agent.

Dr. Ellett (Memphis) advocated the use of probes.

Dr. Weeks (New York) pointed out the difference between hospital and private patients. The latter were loath to submit to an operation until every other means had been tried. After this, he advocated excision of the sac. Epiphora was not uncommon after the operation, and he had been obliged, in some cases, to excise the lacrimal gland.

Mr. Whiting (London) thought that the operation pre-

sented great difficulties at times, and was often incompletely done, necessitating a second intervention.

Mr. Bishop Harman (London) advocated not only the excision of the sac, but also the extirpation of the canaliculi.

Mr. Devereux Marshall (London) considered that streptothrix in the canaliculus was not uncommonly met with, but was often overlooked. Still, many cases were quite obvious clinically. The treatment was simple, and it was not necessary to slit the canaliculus.

Mr. Charles Wray (Corydon) preferred local anaesthesia, and strongly deprecated the use of adrenaline in a patient under chloroform, as he had seen a fatal case under those conditions. The lacrimal crest was difficult to feel, but a speculum was never necessary. He thought that no sac should be lightly removed.

The President strongly condemned the operation of excision of the sac, as the use of hollow gold styles cured all the cases. He thought if anything were extirpated, it should be the lacrimal gland.

Mr. Inglis Pollock (Glasgow) gave a lantern demonstration and read a paper on Persistence of the Nerve Plexus of the Iris after the excision of the Ciliary Ganglion and of the Superior Cervical Sympathetic Ganglion.

BRITISH MEDICAL ASSOCIATION.

SECTION OF OPHTHALMOLOGY.

FRIDAY, JULY 25TH, 1913.

MR. T. H. BICKERTON, PRESIDENT, IN THE CHAIR.

The discussion on the question of excision of the eyeball in cases of injury was opened by M. L. Hepburn. He divided injuries into three groups: (1) those cases in which there was no penetration; (2) penetrating injuries with or without the presence of a foreign body. (3) Blows causing (a) complete rupture, (b) sub-conjunctival rupture. The question had to be considered under the following heads: (1) Immediate excision within a day or two of the injury. (2) Postponement of the excision, and the line of treatment adopted in the interval. (3) Indications for excision after temporising for a certain period. (4) Excision when sympathetic ophthalmitis had already occurred. Unless the eye were hopelessly lost there was no need to excise immediately. Provided antiseptic

precautions were taken, he did not consider it made much difference which part of the eye was wounded. Should the eye be suppurating evisceration was the better treatment. Little could be done with internal non-perforating injuries. In hypopyon ulcers, vigorous cauterization was necessary. Carbolic acid, except in the mild cases, was not sufficient. Should the ulcer spread and the tension become raised, the anterior chamber should be opened: but in order to prevent total anterior synechia, he preferred to do an iridectomy as soon as possible. Penetrating wounds, with or without the presence of foreign bodies, were liable to produce sympathetic ophthalmitis, yet there was scarcely any need for immediate excision in these cases. All cases should be placed before the Haab magnet, no matter what the X-ray photograph showed, and if possible, the foreign body should be got into the anterior chamber. The iris should be freely excised should it be involved, and the lens matter removed if it be wounded. Should the eye be infected, it did not militate against the operation. He did not consider that the presence of a foreign body was of much importance in the development of sympathetic ophthalmitis. Most cases of sub-conjunctival rupture led to excision. If an eye had not quieted down within six or eight weeks, the question of sympathetic trouble became a very urgent matter. Should the eye be hopelessly damaged, it should be excised. If some useful vision remained, the question was far more difficult to decide. If sympathetic had developed, the original injured eye might, in the end, be the only one which retained any vision at all. The points on which he chiefly relied as danger signs were: (1) continual injection; (2) sympathetic irritation; (3) a greenish, semi-translucent look about the iris; (4) a whitish reflex from the fundus; (5) a continual fluffy appearance of the lens capsule; (6) lowered tension. Should any of these signs be present, the eye ought to be excised, then sympathetic would probably not develop. He was rather sceptical about sympathetic occurring years after the original injury.

Mr. R. Affleck Greeves discussed the matter from the pathological aspect. All cases of pan-ophthalmitis ended in phthisis bulbi, and the preservation of the eye served no useful purpose. Unfortunately, sympathetic could not be diagnosed for certain until it appeared, and the causative agent and the method of its development were still matters of conjecture.

Histologically, the kind of inflammation in the two eyes conformed to a definite type, and was different from other forms of uveitis. Caseation never took place, but the final result was cicatrisation. Optic neuritis was inconstant, but the ciliary body and choroid were always involved. Of all the cases which occurred at Monfields hospital during the last 15 years, evidence of the disease showed itself either before or within a week of the enucleation. The interval of its development after the original injury was never less than two weeks, and in the majority of cases not more than two months, although twenty years was the time in one case. Slight injuries to a damaged eye might be the starting point of the disease. In none of these cases could penetration be excluded, and in most, ciliary body or iris were involved. Retained foreign bodies, *per se*, did not appear to greatly favor the development of the disease. The nature of the foreign body was very important. If iron or steel siderosis occurred, eye eventually became lost. Suppurating eyes were not liable to produce sympathetic, neither were cases of perforating ulcers as a rule. With a globe in which bone had developed, sympathetic irritation was rather liable to occur. In all cases in which sympathetic ophthalmitis had occurred years after an injury, a recrudescence of the inflammation was the rule. The presence of keratitis punctata was most significant.

Mr. S. H. Browning (London) discussed the matter from the bacteriological standpoint. The important thing in the blood count was the increase in the large mononuclear leucocytes, while the polymorphs were diminished. The charts clearly suggested that sympathetic inflammation was a protozoal disease. For this reason, salvarsan had been tried, and the results obtained with it were most encouraging, both because the eye became improved, and also because the blood count rapidly approached the normal. Marked cases of sympathetic almost invariably gave a typical protozoal count. These changes had also been seen in the cases in which sympathetic had not yet developed. It was probable that in sympathetic ophthalmitis a systemic infection had already occurred before pathogenic eye changes appeared. He gave tablets showing the changes which occurred in the blood in different diseases. He suggested that a differential blood count should be made in all cases of penetrating injuries: in positive cases the eye should be excised, or else salvarsan should be given.

Mr. N. Bishop Harman (London) spoke of the disease as occurring in children.

Lt. Col. Elliot (I. M. S.) (Madras) said that in all penetrating injuries, conjunctival antiseptics was most important, together with atropine. The least possible surgical interference was desirable. A good eye should never be hazarded in vain endeavors to keep an injured one. He believed in the possibility of an old damaged eye producing sympathetic, but some eyes with retained foreign bodies continued to have good vision for a very long time. Enucleation of the eye was the operation of choice, but evisceration had often to be done in the case of Orientals who would not submit to excision. He strongly spoke of the danger of excising suppurating eyes. Optico-ciliary neurectomy was sometimes a possible substitute for excision. He had never seen sympathetic follow Mule's operation, but he had given it up on account of the liability of the globe to come out.

Mr. Harrison Butler (Leamington) doubted whether Fuchs' inflammation was typical of sympathetic. Deutchmann denied it. Copper in the eye was never tolerated.

Mr. Devereux Marshall (London) had not the slightest fear in excising a suppurating eye: he excised every suppurating eye he came across. He had known cases in which death from meningitis had occurred after excision, and he had also known it to occur when the suppurating eye was not excised.

Mr. Charles Wray (Croydon) said that no mention had been made of Dionin in the treatment of wounds likely to lead to sympathetic. It caused intense pain when it was used. He preferred evisceration to excision in suppurating eyes. An attempt should be made to get rid of toxins by means of a considerable amount of exercise taken in the open air, together with free rotations of water and the administration of mercury.

Lt. Col. W. G. Pridmore, I. M. S. (Rangoon) agreed that no risk should ever be run with children, and a dangerous eye should always be excised. In adults, more conservative methods might be justifiable. He was surprised to hear that Colonel Elliot had given up excision in suppurating eyes. He had excised hundreds of them, and he thought it was the best treatment in such cases.

Mr. Maurice H. Whiting (London) described a case of perforating injury with excision on the 13th day. Photophobia occurred ten days later, with a raised mononuclear blood count.

After neosalvarsan was given, there was no recurrence of the sympathetic symptoms. He preferred exsiccation followed by excision of the sclera in cases of suppuration.

The President summed up, and Mr. Greeves replied to several questions which had been asked.

Mr. A. F. MacCallan (Cairo) described an operation for ectropion of the lower lid in trachoma, which consisted of the removal of the tarsus and the formation of a fornix.

Mr. T. Harrison Butler (Leamington) described Holth's Punch operation for glaucoma. Since iridectomy did not give universally good results, scleratomies and sclerectomies had been tried. If the wounds healed up too well, little or no good resulted. He considered that the scleral incision should be small, and a piece of it removed if drainage was to be continued. After various trials, he preferred a puncturing operation to trephining, for he thought it the safer of the two. He described various objections to the scleral trephine. He had invented a modified punch which gave, in his hands, excellent results. He now recommended a very broad Taylor's bent needle for making the incision, and then punched out a piece of the sclerotic. He considered the operation easier and more rapidly performed than trephining.

Lt. Col. Elliot (Madras) said that in the main he and Mr. Harrison Butler were in agreement. He considered that the introduction of a sharp-pointed instrument like a bent broad needle into the anterior chamber was a dangerous procedure, and was really unnecessary. He did not approve of performing sclerotomy on an opened eyeball with an empty anterior chamber, while in trephining the conditions were exactly the reverse. He thought that Mr. Butler's instruments must inflict damage on the surrounding tissues, while trephining produced the absolute minimum amount of surgical violence.

Dr. McReynolds (Texas) said that the whole world was indebted to Colonel Elliot for his work on glaucoma. The successes obtained with the trephine abundantly demonstrated its utility. Should the trephine not be available, he had found it possible to insert a needle and thread into the piece of sclerotic he intended to remove, then to excise it with a Beer's knife and a pair of scissors. He had done the operations with perfect success in both acute and chronic glaucoma. Remarks were made also by Mr. Hepburn, and the president summed up.

**MEDICAL AND CHIRURGICAL FACULTY OF
MARYLAND.**

SECTION ON OPHTHALMOLOGY.

BALTIMORE, OCTOBER 15TH, 1913.

DR. H. O. REIK, PRESIDING.

An Inquiry Regarding Increased Tension of the Eyeball.

The guest of the evening, Dr. Samuel D. Risley of Philadelphia, opened the meeting with his paper entitled "An inquiry regarding increased tension of the eyeball." He said that we must admit today that Priestly Smith's definition: "Glaucoma is increased tension of the eyeball plus causes and effects," still defines and outlines our understanding of the condition. Despite this he believes that rays of hope are shed upon the subject by a more correct understanding of the anatomy and histology of the eye and of the essential nature of certain systemic conditions, associated with increased tension of the ball, than formerly obtained.

Considering first the atypical forms of glaucoma, in the group comprising the buphthalmic eye of infancy or childhood, serous iritis and chronic recurring plastic iritis, he is impressed by certain significant facts. In each of these is found increased tension, seriously impaired visual acuity, and, when possible to determine it, a contracted field, together with the usual laboratory findings of glaucoma. Another atypical group is constituted by cases of perforated cornea from ulcer, or, by perforating and infected wounds leading to corneal staphyloma, empty anterior chamber, irido-cyclitis, increased tension and loss of vision. He then described the typical forms of glaucoma and asked what relation all of these bear to each other and if there be an etiologic factor more or less common to them all and to which the increased tension is secondary. These queries he discussed at some length citing examples of each group in which general underlying causes were found and in which the ocular disease was but one of the local manifestations. He believes the increase of tension in idiopathic iritis to be due to inflammation in the ciliary region and interference with the anatomy of structures in that vicinity by the inflammatory products and the increased colloidal secretion from the inflamed uvea overloading the pectinate screen. Here he discussed the nature of the varied diseases which might be at the bottom of these presumably idiopathic ocular conditions. In the inflammatory type of glaucoma he asserts that the ophthalmoscopic study is important.

The posterior pole of the fundus may fail to show cupped disc and arterial pulse, and may be perfectly normal in appearance, while the periphery is fluffy and veiled; a fact which may account, as Fergus has pointed out, in choroidal affections, for certain limitations of the field of vision which, in examples of increased tension, we are prone to ascribe solely to the condition of the nerve as the result of pressure. Then, too, the failure of the accommodation in the early stage of the glaucomatous process points decidedly to disease in the ciliary region involving the contracting power of the ciliary muscle, and possibly to some pathological interference with the suspensory ligament bathed, as it must be, in the products of inflammation. The halos around the flame frequently occur in the early transient attacks when there is no demonstrable steaminess of the cornea. He has frequently been able with a plus 12. D. lens and a strong light to detect, with the ophthalmoscope, a fine granular infiltrate back of the lens, apparently occupying the space between the lens and the anterior border of the vitreous body whither it has probably proceeded from the inflamed ciliary region through the complex fibrillated structure constituting the suspensory ligament. In fact, glaucoma rarely occurs in individuals in good general health, but in advanced age, in late stages of vascular disease or in the presence of some dyscrasia. Therefore, in what organ of the body, he asks, are we more likely to find the local expression, than in the blood-vessels of the uveal tract, general uveitis, retinal hemorrhages, hemorrhagic glaucoma. He considers that other organs of the body, when affected by the changed conditions of their nutritive fluids, present an analogous condition. In chronic rheumatic or gouty subjects, for example, the swollen and painful joints, following exposure or indiscretions in diet, giving rise to toxic or other states of the blood, afford an analogous condition of pressure and pain and uraemic coma presents a striking example of intracranial oedema and pressure.

In the eyeball, however, despite the more or less closely analogous pathologic states affecting other organs, the complex and extremely delicate anatomical mechanisms by which its functions are performed, introduce other factors. The drainage system, although sufficient in health, may be inadequate if the fluids to be drained into the lymph spaces surrounding the eye are changed in their quality by disease of

the tissues which secrete them; or the filtering tissues themselves may suffer injury and their functions become impaired by contact with tissue juice of a toxic character. By way of illustration he called attention to the fine granular infiltrate into the vitreous body in cyclitis, and asks why this infiltrate lying near the posterior capsule of the lens, has not been carried into the anterior chamber; whether, because of its changed character, the secretion can no longer pass through the fine fibrillar structure of the zone of Zinn, or whether the latter has been injured by the inflamed ciliary muscle and contiguous tissues from which it springs. In either case he claims that a sufficient explanation is found, in the accumulation of fluids back of the zonule, for the pressing forward of the lens, resulting in a shallow anterior chamber, and a partial or complete closing of its angle by the periphery of the iris, which, because of its participation in the uveal inflammation, becomes firmly glued to the cornea at the angle. With such reasoning he hopes to find a possible or even probable picture of the pathological history, and also an explanation for the clinical course pursued by the atypical forms of increased tension of the globe, as well as the clinical picture of inflammatory glaucoma. This would make one wonder why all cases of uveal disease did not result in pathological tension of the eyeball, but, as in corresponding systemic states in which a synovitis is set up, and the right knee or right shoulder joint selected, no explanation can even be made for the individual predilection, although we do know that hypermetropic eyes are more prone to suffer increased tension than myopic; that eyes, with a thick, rigid, presumably unyielding sclera, are also prone to glaucoma. Here he calls attention to the increased refraction in eyes after a severe attack of irido-choroiditis and tells us that he has many times seen a hypermetropia diminish or an actual myopia develops without swelling of the lens and therefore presumably due to an axial change in the ball from the distension of the thin yielding sclera under the intra-ocular tension. He considers that had the sclera been less yielding in these cases glaucoma would have resulted instead of distension of the globe.

In order to explain glaucoma simplex, or the so-called non-inflammatory glaucoma, he turns to a large clinical experience and three cases which he has under his care at the present time, the interesting histories of which he gives in

detail in order to suggest the etiology of glaucoma and its relation to systemic disease, even in its non-inflammatory type. The most interesting example was a woman whose eyes he had under observation for eight years because of a refractive error and without the remotest suggestion of a glaucomatous process. During these years from 40 to 48 years of age, she became the victim of an advancing rheumatic or gouty diathesis with *arthritis deformans* and with this general dyscrasia came ocular disturbance consequent upon delayed drainage, impaired range of accommodation, rainbow circles about the gas flame, a hazy oedematous retina, increased tension of the ball and iridectomy, following which she sedulously followed a regulated diet, took alkalies and the salicylates and maintained vision of 6/5 for six years without changing in the fields. Then came a chapter of domestic afflictions and with it a rapid increase in her arthritis and the classic glaucomatous symptoms. He thinks the return of the process due to changes in the tissue of the globe, especially in the region of the scleral roll and canal of Schlemm, and probably, also, in the region of the ora serrata, similar to or identical with those which had occurred in the joints, closing the filtration channels in the anterior segment of the globe. Another case was one of intestinal toxæmia in which a previous non-inflammatory glaucoma was transformed into an inflammatory one. The third was likewise a case of intestinal toxæmia associated with high blood pressure and developing glaucoma simplex.

In closing he calls attention to the laboratory findings in eyes enucleated after periods of increased tension. The atrophy of the uvea in the ciliary region and the dilatation of the blood-vessels are marked. Obviously the shrinking of the ciliary body, muscles and processes would cause a shrinking of these tissues and a drag backward of the root of the iris and the meshwork composing the pectinate screen, at the angle of the anterior chamber, together with the blood-vessels of the ciliary zone of the iris. It is the cutting free, he believes, of these contracting bands of adhesion between the most anterior border of the ciliary body and the root of the iris which results in the benefit afforded by a properly performed iridectomy, and a successful peripheral iridectomy severs these pathological adhesions better than any procedure with which he is familiar.

Finally, he says, if these suggestions are accepted as true, glaucoma takes on a different, if not a new, meaning, and

must be regarded as a convenient appellation for the ocular manifestation or expression on the one hand of a general or endogenous infection or toxaemia, on the other, an exogenous or local infection. Then treatment must be addressed to those etiologic factors and holds out the hope of prevention, and failing this, operation is designed to ward off temporarily the sequellae of increased intraocular tension.

Treatment of Simple Glaucoma.

Dr. Harry Friedenwald next read a paper on the "Treatment of Simple Glaucoma," and concludes:

Our therapy should be guided in a large measure by the intra-ocular tension and by the effect upon it of myotics. In case of high pressure immediate operation is indicated.

Cases of moderately elevated tension should be treated with myotics and if the tension can be kept normal or preferably sub-normal, this treatment should be continued; if not, an operation should be performed on the poorer eye, if both are affected and we should be guided as to operation on the better eye, by its effect.

In cases of glaucoma without elevation of tension, or with but slight elevation, we should rely upon the careful use of myotics. In all cases frequent examinations of the vision, field of vision and with the tonometer should be made.

Dr. Samuel Theobald spoke rather briefly on the incision in glaucoma. He has always preferred the lance or iridectomy knife, and for a number of years he has used a very obtuse or curved iridectomy knife and believes that the mistake in most keratomes is that the angle is too acute. His objections to the von Graefe knife are that the incision gapes more and that the section may be followed by a rupture of the suspensory ligament and consequent loss of vitreous. When introducing the knife into a very shallow chamber he does not attempt to increase the incision, but on withdrawing it he does. The incision should be made as close as possible to the plane of the iris. Filtration through the wound and subsequent scar is the principle made use of in the LaGrange and trephine operations and in iridostasis. When the iris has undergone atrophy and is friable it does not tend to retract when abscised. The result is that it is often difficult to make a classical iridectomy, especially in old, sub-acute glaucoma. Often, however, he has obtained the best results from poor iridectomies with entanglement of the iris in the

wound, which he thinks due to the increased filtration produced thereby.

Two very interesting cases were then shown. The first, a patient of Dr. H. V. Tweedie, was one of simple glaucoma, of sub-acute type.

Dr. A. D. McConachie's case was a young man who consulted him last April for iritis. Next seen in September when glaucoma had developed. Eserine was used but failed to reduce it. V.=16/200. Trephining was resorted to two weeks ago and a conjunctival flap was made. Eserine was used and tension came down. Again tension rose and the bulging cicatrix was incised and tension dropped to 10 m. m. two days ago. No eserine used since then and tension today was 35 m. m. while cornea was steamy. Will again try eserine and if tension continues elevated will open old wound and perform iridectomy.

DISCUSSION. Dr. Hiram Woods believed that ultimately with the aid of the internist and physiological chemist, we will have an understanding of the action of toxins on the small blood-vessels and comprehend the eliminative action of the choroid. He had never seen a case of acute iritis following Rheumatic Fever and does not believe it an aetiological factor in these conditions, and he believes that when the metabolism is gone into,—the stools examined, and the nutritive changes understood we will know a great deal more than we do now.

Dr. Crouch asserted that he has little hope for the success of the systemic treatment for glaucoma, and that he cannot recall a single case where such treatment modified the glaucomatous process. He follows the lines laid out by Dr. Friedenwald. With high tension he believes in peripheral iridectomies, in low tension with fields intact he argues for treatment.

Dr. Knorr said in substance:

Undoubtedly there is a relation between blood pressure and intraocular pressure, the latter being maintained by blood pressure and whatever raises or lowers blood pressure has a corresponding effect upon intraocular pressure.

Blood pressure is normally about 120, intraocular pressure is estimated to be equivalent to a barometric pressure of 25 m. m. mercury, this difference is due to the safety-valve action of the veins and lymphatics of the eye; as long as the outflow of blood and lymph from the eye balances the blood supply there can be no elevation of pressure, but when there

occurs an obstruction of the veins or lymphatics elevation of tensions occurs, and that obstruction as shown by Verhoeff in his paper last year wherein he reports the pathological findings in ten glaucomatous eyes, is at the angle of the anterior chamber, namely a sclerosis of the Ligamentum Pectinatum.

The relationship between blood pressure and intraocular has directed attention toward the ductless glands. The adrenals and pituitary body elaborate substances that have the property of elevating the vascular tone.

There is a report from the clinic of Wickerkiewicz of Krakau of the examination of the blood of twelve glaucomatous patients and they have shown by biological and chemical tests that there was an increase of adrenalin.

Dr. Tarun spoke of the syphon-like action by which the liquid was sucked into the canal of Schlemm. He thinks that the trephine will prove of no more value than the peripheral iridectomy of von Graefe. He showed that Elliott's statistics were indefinite in that no mention is made as to whether iridectomy was performed or not. Therefore, no conclusion can be drawn. He said that the normal tension is not 25 m. m. but 18 m. m. He, with Abadie, is a firm believer in peripheral iridectomy and believes that it acts by cutting a nerve plexus at the root of the iris which has a reflex action on the blood supply.

Dr. Risley closed the discussion with the following remarks: "Advances must come only along anatomical, histological and physiological grounds. We are learning new histological facts every day." He repeated that he believes iridectomy does good because it cuts away the contracting fibers at the root of the iris, and favors cutting away a wide sector through this contracted area in the ciliary zone. Therefore he does not expect much from the trephine with its large filtrating cicatrix and will continue to perform iridectomy and do it under ether. He, like Dr. Theobald, uses a keratome. He answers Dr. Woods by stating his belief that the high blood pressure is only related to increased intraocular tension in that the same autointoxication causes both, that one is not due to the other.

Dr. Reik closed the meeting with complimentary remarks on the papers of the evening. LLOYD B. WHITLAM.

Secretary.

ABSTRACT OF PAPERS AND DISCUSSIONS BEFORE
THE AMERICAN ACADEMY OF OPHTHAL-
MOLOGY AND OTO-LARYNGOLOGY.

AT ITS EIGHTEENTH ANNUAL MEETING HELD AT CHATTANOOGA, TENNESSEE, OCTOBER 27, 28, 29, 1913.

In the opening address by the Chairman of the Ophthalmological Section, Dr. John O. McReynolds, of Dallas, Texas, said that the Academy gives an adequate opportunity for the development of its entire membership in the fields of research and clinical experience, and is a stage on which the makers of history present in vivid review the best labor of their lives. It is not a museum of interesting fossils and birds' eggs and relics, but rather a great laboratory of thought, in which the experiences and deductions of men are tested in the crucible of keen, kind, convincing criticism; in which errors are precipitated and filtered off from the perfect and permanent fluid of truth; in which methods and results rather than dogmatic authorities control the trend of effort and establish the equal right of merit, wherever found.

Dr. McReynolds then introduced the honor guest of the Academy, Lieut. Col. Elliott, of London and Madras, who delivered an oration in Ophthalmology on *Trephining for Glaucoma*. Lieut. Col. Elliott said that the object he had before him in this operation was to tap the anterior chamber with a minimum of surgical violence and permanently to draw away the fluids of that chamber through the efferent channels of the subconjunctival space. Iridectomy enters into the procedure exactly as it does into the combined operation for cataract—a necessary evil but one which may be reduced to a practically negligible quantity. The speaker said he was led to include iridectomy in the operation by finding from time to time the iris in the neighborhood of the wound bulged and closed it. Cases have often been pointed out in which the surgeon was satisfied that fistulization had not occurred, and the flat condition of the conjunctiva cited as proof. The idea that such a condition negatives the possibility that filtration is taking place is based on a misconception. If a spatula be pressed over the neighborhood of the wound it will be found that free filtration is taking place, as evidenced by the pit made by the spatula, just as a pit is made by the thumb over the oedematous shin bone of a patient with a renal cardiac trouble.

Every effort has been made to avoid interference with the ciliary body, and in consequence the site of trephining has gradually crept forward until the operation has become a sclero-corneal or even a corneo-scleral procedure.

One needs but to look to see that a permanent fistulous hole can be definitely established in the tunic of the eye. If the couch of filtering fluid is thick, it may be necessary to press gently over the trephined area in order to express the filtered fluid, when the "hole" may be seen through the thinned covering layer. When it does fill up, the black, round hole disappears and its place is taken by white or greenish tissue and the clinical signs of filtration disappear.

The correct formation of the flap is the critical step in the whole procedure. There must be a permanent gap in the endothelium of Descemet's membrane; the margins of the wound in the cornea and sclera must be kept antiseptic and constantly bathed by aqueous humor; and an extension of the surface epithelium down the lips of the wound must be prevented by removing the opening in the sclero-corneal tissue as far as possible from that in the conjunctiva.

The author believes that good filtration from the corneal area is more likely if the tissue is torn rather than cut in the course of dissection, as in this way the spaces of the tissues are opened up rather than their layers cut through, which, it seems likely, would favor subsequent drainage.

The new sliding flaps which have been advocated are not approved by Lieut. Col. Elliott, as in them there is a breach of surface of the conjunctiva in the immediate neighborhood of the trephine hole, thus giving rise to the danger of the epithelium growing into and plugging the hole; the increased danger of sepsis, and the delayed union of the flap to the deeper parts and therefore the later re-establishment of the anterior chamber. It seems obvious that such flaps will heal down to the cornea right up to the anterior edge of the trephine hole. Again, these flaps may retract and leave the trephine hole exposed.

As to the difficulty of the operation, Col. Elliott thought it was not a valid objection. While he would not call sclero-corneal trephining an easy procedure, it should easily come within the powers of any surgeon with good eyesight and skillful fingers. He looks upon the new modifications of his operation as retrograde steps and combats them because he

feels that in its present period of trial the operation requires to be protected.

As to late infection of the eye after trephining, and delay in the reformation of the anterior chamber, it is first necessary to premise that two distinct conditions are involved; a leaking chamber, and a soundly closed chamber into which the relaxation of the lens ligament and the pushing forward of the ciliary body permits and invites the lens and iris to project. In a leaking chamber it will frequently be found that there is a tiny fistula under the flap owing to the failure of the lips of the incision to unite. If the leaking spot is touched with a sponge wet with silver nitrate solution it is immediately closed, with a concomitant filling of the chamber.

A soundly closed chamber that was shallow before the operation may remain so thereafter, but if this shallowness is due to the preceding glaucoma, trephining restores the natural depth; but if due to the fact that a long standing glaucoma had overstretched the diaphragm of the eye, it cannot be expected that the re-establishment of the aqueous current will overcome the mechanical deformity there occasioned.

Massage of the eyes in those cases where there seems a doubt as to the establishment of filtration is a sound procedure and quite free from danger if carefully conducted. In late suppuration following trephining, it is suggested that the route by which the micro-organisms entered the eye was along the tiny open channels in the edge of the flap rather than by the tranconjunctival route. The danger of these fistulae should ever be in the surgeon's mind when the anterior chamber fails to fill as it should.

In the presence of glaucoma coloboma, Col. Elliott always trephines, if possible, over the middle of the coloboma, for the reason that the coloboma is usually directly upwards and therefore in the usual quadrant of selection for trephining and the absence of iris tissue from the neighborhood of the trephine hole simplifies the operation and adds to the safety of the after course of the case.

If the flap shows no tendency to keep its place it should be sutured; otherwise it is better to omit the extra step, thus shortening the operation and getting the patient back to bed quicker. In downward flaps the advisability of using a suture is not disputed, while it should never be omitted in lateral flaps.

Col. Elliott said that from his earliest trephining it was

observed that the entanglement of uveal tissue in the wound constituted a grave menace to the permanency of filtration. When the trephine hole was moved further forward on the cornea it was found that iris complications vanished and results improved. This was due to the fact that the hole was farther away from the angle of the chamber and one did not have to deal with uveal tissues tethered to the cornea quite close up to the point of opening, and the trephine hole was in a place anterior to the iris, so that the moment the chamber filled the iris tended to fall back from the hole. The size of the hole renders any blocking of it most dangerous.

Col. Elliott believes that anatomical evidence will in time be forthcoming to show that the ideal successful trephining is that in which the fistula is free from all heterogeneous elements.

Some Scientific Aspects of Inoculation Therapy, and the Relations of Immunity So Induced to That Spontaneously Acquired.

A paper by Dr. Will Walter, of Chicago, considered the aspects of local and general response to infection. It was stated that prophylactic inoculation is difficult because epidemics vary as to kind and strain of infector. What the author terms "sensitization of the area" is of importance in recurring types. Certain types of infection produce only limited immunizing response and lead often to what is termed "defensive equilibrium," wherein the lesion is neither well nor healed. There are two factors in this: the increased viability of the organism and the defense of the host. Therapeutic inoculation is valuable, often essential, but other forms of defense must be early stimulated and drainage obtained at proper time. It all leads back, in the last analysis, to normalizing the sensitized locality, raising general bacteriotrophic pressure, and the prevention of stasis by determining the flow of immunizing blood through the area.

Dr. S. H. Large of Cleveland, O., who opened the discussion, said that for the past year an effort had been made in his office to find something for "colds" and a bacteriologist has examined almost every case and endeavored to find the microorganism that the patient's resistance is low in. In most colds the staphylococcus came first, the influenza coccus next. When the patient comes with another cold and the same microorganism, an immediate autogeneuous vaccination makes the duration of the cold much shorter than otherwise. The whole

theory is in raising resistance. In sinus cases, drainage is secured first and then the vaccines used. Vaccines alone are not to be depended upon. The stock vaccines were not recommended by this speaker.

Dr. Wendell Reber, of Philadelphia, told of a case, a woman declined operation for cataract because her conjunctivae were not at any time bacteriologically negative. After careful study of the case for eight to ten weeks, it was proposed to give her staphylococcus injections 60 hours before operation, and on the third day still more staphylococcus. She did nicely until the fourth day when the beginning oedema was seen at the inner angle of the upper lid. She was given three hundred million staphylococcus aur., and in three days three hundred million more. She reacted nicely, was saved a severe post operative infection and has a satisfactory visual result.

Another case wherein excision of the lacrymal sac was positively declined, has had 12 or 15 treatments with staphylococcus vaccine with favorable results.

In an obscure case of uveitis: negative Wasserman, negative rhinological examination, von Pirquet and tuberculin without result, the knee joint was tapped and culture made with negative result. It was then thought to be a strange perversion of metabolism and she was empirically placed on thyroid, which aggravated her condition. Her tonsilar scrapings were cultured and shown to have an infection, from which a vaccine was made and under this she has shown great improvement.

Dr. Kate Wyle Baldwin, of Philadelphia, recommended the use of the violet ray and ozone in the treatment of septic conditions in preference to vaccines.

Dr. Joseph Beck, of Chicago, said he could not subscribe to the good results from the use of autogenous vaccines, as cited, and that it must depend on the pathological conditions. In cases like Dr. Reber's, scraping of the tonsils will often stop these ocular conditions. In iritis it may be infection from the tonsils, the sinuses, the ear or the teeth, and these patients must have the proper attention to the intestines, the uterus, the prostate, the gall bladder, the appendix and the skin, which are peripheral pockets and must be watched out for, so that one will not be taken in by the statement that removal of the tonsils will cure the rheumatism.

Dr. Saml. D. Risley, of Philadelphia, said he had seen results from these injections that had seemed marvelous if not

indeed, miraculous, and he had likewise met very bitter disappointment. He was inclined to believe that while the injection of an anti-toxin or of the bacillus in tuberculosis might remove the present conditions, it would not remove the sequelae of the condition, and this might explain the conditions referred to by Dr. Beek. The slower processes of nature are required for the removal of the results of a disease, as the infiltrations and thickened tissues.

Dr. Walter, closing the discussion, said he had only attempted to speak from a broad viewpoint. There is a natural immunity, so that one may be safer if he takes good care of himself, lives properly, breathes deeply and keeps the bowels in proper condition. Calomel will raise the resistance.

He thought the violet ray and ozone did not kill the organisms in the tissues, but increased the opsonic index in the region and stimulated the anti-bodies against the attack of the organisms. This is only a part of the therapy which must be employed if one is finally to beat infection.

Adenoids as a Factor in Amblyopia.

Dr. Charles Franklin Adams, of Trenton, N. J., read a paper on "Adenoids as a Factor in Amblyopia." He said that the accessory cavities of the nose, i.e., the maxillary antrum, the frontal sinus, the ethmoid cells and the sphenoid sinus, may implicate in their diseases the orbit and the optic nerve. The ethmoid cells are separated from the orbit only by the thin lamina papyracea, which sometimes has gaps in it. In the optic canal the dural sheath of the optic nerve is transformed into the periosteum of the bony canal, and the optic nerve in this situation is enveloped only by the delicate pial sheath, which in most places is applied to the periosteum and on the upper side is actually adherent to it. This anatomical relation facilitates the direct transfer of inflammation from the cavities in the vicinity of the canal to the optic nerve itself. The cause of sinusitis is frequently the cause of disturbance in ocular function, as in the case of adenoids, which interfere with nasal circulation and cause catarrhs, also interfere with the circulation of the eye, produce hyperemia and a disturbance of choroidal pigment which can be readily discerned by the ophthalmoscope. When adenoids are removed in children before too much damage has been effected, the eye will return to normal and the amblyopia disappear in a few weeks. Several cases were cited to show the close relation between the

lymph and blood supply of the naso-pharynx and the eyes where the exciting cause was adenoids.

Dr. Risley, discussing the paper, said he felt there was no longer any one who would question the relation between certain forms of ocular disease and the sinuses contiguous to the orbits. He asked if it might not be possible that those forms of inexplicable scotomata which are often found might have been produced in the adenomatous age, the adenomata having disappeared by operation or naturally.

Dr. Langworthy, of Dubuque, told of a child of seven years who had adenoids removed three years ago with fair results, but later on obstructed nares and mouth breathing as bad as ever. She also began to have trouble with her eyes and had been brought to him for this condition. He found little refractive error. Both turbinals were injected, filling up the lower nasal cavity. Removal of a strip of both middle turbinates was followed by remarkable improvement in her sight.

Dr. Will Haskin, of New York, suggested that in cases where the child still had nasal difficulty, careful measurement should be made of the alveolar process, when it may be found there is a failure to develop in the whole superior maxillary. These cases can invariably be relieved by orthodontic means, separating the processes and pulling the teeth forward, when the septums will straighten out in children.

Ocular Symptoms Associated with Oxycephalus or Tower Skull.

Dr. James M. Patton, of Omaha, presented a paper on "Ocular Symptoms Associated with Oxycephalus or Tower Skull," showing the anatomical and development anomalies associated with this condition, special attention being given to the influence on the ocular structures, with X-ray findings and report of a case.

Dr. Patton said that although this condition had been recognized since the days of Mackenzie, the etiology is not clearly established and cases coming under observation should be studied with this in mind. The extreme gravity of the condition in relation to the eye should be early recognized and a guarded prognosis given. Radiographic studies are helpful in determining the amount of deformity in the region of the sella, chiasm and orbital roofs. Although the results of operative measures have been rather disappointing, yet in progressive cases decompression offers some hope of relief and the patient

should be so informed and given the benefit of this operation, if desired.

Discussing the paper, Dr. Joseph Lichtenberg, of Kansas City, cited the literature on this subject, showing pictures of two cases through the courtesy of Drs. Beck and Stein, and reported a case under his own observation. He said the generally accepted theory is that an early sinusitis causes intra-cranial pressure and there results a condition similar to intra-cranial tumor. The greatest development of the skull is up to the seventh year, hence if any therapeutic measures are undertaken it should be before the seventh year. The cause of this condition is sometimes rachitis. Trephining the skull and other measures, such as lumbar puncture, have been adopted in an effort to reduce the intra-cranial pressure.

Dr. John Green, of St. Louis, reported a case in his service in the Children's Hospital, in which the cranial deformity was of the ordinary type, except that there was a very marked line of pressure at the level of the eyebrows where there was a compression all around the skull as though compressed by a constricting band. The elevation of the skull exophthalmus noticeable. Hypermetropia with blurring of the discs. Pupils reacted perfectly to light, and the eyes followed a bright light in all directions, showing some vision. The question of operative interference was negatived and the case will be observed and reported more fully later.

Dr. Beck said he was much intersted in whether the nystagmus is oscilatory or rhythmic, his case being of the latter variety. The patient was about to be operated on for an exophthalmic goitre, but the case cleared up to be one of oxycephalus.

Dr. Lichtenberg stated that nystagmus is found in about 35 per cent of cases, and mainly of the oscilatory type in a horizontal direction, and very seldom the rotary type.

Dr. Patton, closing the discussion, said that decompression trephining was the only method of relief he had discovered. Most authors, he said, look upon rachitis as the cause of the deformity, while a few make light of such an idea.

Retraction Movements of the Eyes: Acquired and Congenital.

A paper by Dr. John Green, Jr., St. Louis, Mo., stated that the retraction of the eyeballs is a normal function in frogs and some of the lower mammalia. In man acquired retraction

movements have been observed in lesions involving the floor of the fourth ventricle, under the influence of emotions, on grasping the conjunctiva with fixation forceps, as a passing recession of the globe on drawing the lids apart and in traumatic enophthalmus. These conditions are rare, however, and of slight interest compared with a congenital anomaly of the ocular muscles, first adequately studied by Evans and Duane, of which the most conspicuous signs are partial or complete defect of abduction, some limitation of abduction, and retraction of the globe into the orbital cavity. Dr. Green gave a synopsis of the cases reported since the papers of Duane and Green, and reported four cases of Duane's syndrome, in one of which a congenital deformity of the external rectus muscle was discovered, which has not been described by any writer in this connection. Two slips of the muscle were attached at or near the equator but were certainly continuous with the single band which, tightly adherent to the sclera, extended forward to the site of the usual insertion. It seems probable that in fetal life the two heads were actually separate as far forward as the site of the anterior insertion and that by reason of an intra-uterine inflammation, that portion of the bifurcated tendon which lay in contact with the globe became fused and firmly attached to the sclera. Contraction of these equatorially inserted slips (assuming that they contained muscle fibres) would result in only slight outward rotation of the globe. When the internus contracted, the short and presumably inextensible bifurcated bands representing the externus would tend to limit inward rotation. Increased innervation of the internus would then result in retraction of the globe.

In general an operation is not required and is to be avoided when possible. If the externus is normal in structure and insertion, advancement associated with a guarded tenotomy of the posteriorly inserted internus may be performed in cases associated with internal squint. Should an exploration reveal a normal internus with a fibrous externus, the operation of Hummelshein would seem to be rational. The latter, after extirpating the internus in a monkey, split the superior and inferior recti and sutured the two nasal halves to the line of insertion of the extirpated muscle. The animal retained good power of convergence and lateral movement.

Dr. Edward Jackson, of Denver, who opened the discussion,

offered a point of view which should be helpful in studying these cases. The eyeball is usually spoken of as a ball rotating in a rotary socket, comparable to the ball and socket joint. It is, rather, a globe rolling in a support like a hammock, in which it is free. The center of rotation of the ball is back of the diametric center of the eyeball and it does not rotate about its own center. It rolls. The whole globe rolls from side to side in abduction and adduction. Apparent sinking of the globe is seen after wasting disease, but careful measurement shows that the eyeball itself, with reference to the margins of the orbits, is not altered, and it is not materially altered by the sinking of age. Any failure of the freedom of the globe in its fixed support causes a tendency to such defects as those under consideration. The retraction of the globe into the orbit must be due to a weakness of the hammock, and whatever is done to the muscle will fail of effect.

Dr. Allen Greenwood, of Boston, told of a case of a girl of fifteen under his observation since her third week of life, in whom the right eye has absolutely no motion in the outward direction, and with any attempt to turn the left eye the right eye is markedly retracted as well as turned in. The interest in the case has been the effort of nature to adapt the girl to this condition. As she goes about she shows very little sign of the defect to the public, as she has acquired the habit of turning her head in any direction in which she looks, while she keeps her eyes in the primary position, and she maintains binocular vision by the head movements rather than those of the eyes.

Dr. Green, closing the discussion, said he believed the suggestion of Dr. Jackson was a perfectly tenable theory. He suggested that all be on the lookout for these cases, on the etiology of which more light is needed, and suggested that an exploratory operation be made to see what the condition really is.

The Best Time to Prepare for Special Practice.

"The Best Time to Prepare for Special Practice," was the subject of a paper by Dr. Edward Jackson, of Denver. He stated that a collective study shows that the great majority of those who have attained decided success in special practice, began to prepare themselves for it either before graduation in medicine or very soon after; and that with regard to those who have received the highest honors from their colleges this

early preparation is especially striking. This is in spite of the dogma generally current in the medical profession that the medical graduate should have no thought of a specialty until after several years in practice.

Breadth of culture is not secured by multiple or diffused separate interests in youth, followed by a narrowing of interests later. It depends, rather, upon the force of one's chief interest and its sufficiency to carry him beyond custom and routine to seek satisfaction in the relations of more distant facts. The student who becomes so interested in ophthalmology that he arranges his knowledge of the whole of medical science in relation to ophthalmology, is more likely to be the one to push out into still broader fields to be brought into relation with his central interest than is the one whose interest is so luke-warm that it permits him to neglect it for other things, or is acquired so late that it can fill only a minor portion of his life. Every year that the physician's ophthalmic life is shortened, will by so much diminish professional achievement. He travels farthest who selects the direction he wants to go and moves persistently in that direction.

Not only are there facts to be learned but there is skill to be acquired which is difficult to attain to the highest degree. If it is true that it takes three generations to make a glass blower and two generations to make a safe and reliable miner, and that no famous musician ever began the serious pursuit of music after the age of adolescence, is it to be supposed that one will attain the highest skill in cataract extraction who only became interested in such manipulations after the age of thirty? Of course, much of this skill may be acquired in doing things in other fields, and mechanical drawing is one of the best trainings for this work, as well as the exact training by the exact measurements of a physical laboratory. The process of special education must go on through life, but the sooner it begins the better will be the result.

Professional success will only be attained when the interest and application of the student are continued for a period of five or more years parallel to the developing of ophthalmic practice. But there should be no break between undergraduate and special studies and as soon as an interest in ophthalmology is aroused and the purpose formed to take it up as a special life work, that interest should be made dominant and the purpose carried into effect as immediately and directly as possible.

The discussion was opened by Dr. Walter B. Lancaster, of Boston, who said that to lay out a course of study is a matter for conservatism and it is rightfully in the hands of conservatives, but progress is absolutely impossible without change. Not many years ago a man, to be a leader, must be a leader in many branches and a master in all. But the progress of human knowledge is such that there can never be any more men like that, and in medicine the number of things added year by year is so enormous that it is impossible for any one man to cover the whole field. Dr. Lancaster said if he had a son whom he hoped would be called to the high profession of ophthalmology, he would not wish him to begin to specialize as an undergraduate, but in the nursery, with the training of his eyes, his hands and all his faculties from the beginning.

Dr. Wendel Reber, of Philadelphia, said that, while agreeing with the statements of both Dr. Jackson and Dr. Lancaster, he did not think five years of the most thorough going education in all the problems of medical science would be too much of an equipment for a young man who wishes to take up Ophthalmology as his life work. Even as undergraduate medical education has been regulated, post graduate medical education will soon be so regulated that there will be a uniform standard for any one wishing to enter the ranks of ophthalmologists. Dr. Reber asked that a committee be appointed from this society to confer with similarly appointed committees from other ophthalmological societies, with this end in view.

Dr. Bannister, of Omaha, said it was a grave mistake in his opinion, to underestimate the value to an ophthalmologist of general medical knowledge at the bedside and that of an operating surgeon at the operating table. General medicine more and more has a direct interest for the ophthalmologist, as, for instance, in the matter of auto-intoxications, defective metabolism, arterio-sclerosis, Bright's disease, etc., whose results are first recognized in the eye.

Dr. Samuel Risley, of Philadelphia, said that in a general way he was in accord with the conclusions reached in the paper, but all men cannot be measured with the same tape and the personal equation must enter into the consideration of these cases. He has never ceased to be thankful for the teachers into whose hands he first fell for his earliest education in the profession in which he is still a student. His work in the

laboratory, in analysis, and, immediately after graduation his three years as visiting physician in a great dispensary had been of inestimable value. For a number of years a great many have cut their moorings in general medicine, but these moorings are being renewed, as pointed out by Dr. Bannister, and more and more is the necessity apparent of first being a doctor and then an ophthalmologist.

Col. Elliott, of Madras, said the specialty takes one into relationship with so many other branches of medicine and surgery that it did not seem possible to start them out as specialists too soon. He had himself intended to take up this specialty from his earliest student days, but had no opportunity for fifteen years. However, he did not regret the years in laboratory and general work. In England it is considered a man will make a better success if he can spend three or four years taking a general education. A man will not lose, but will gain by the time spent in the end.

Dr. Savage emphasized the statement that ophthalmologists make a mistake in not attending the sessions of their county medical societies devoted to general medicine and general surgery.

Dr. Park Lewis, of Buffalo thought it quite as important that the general medicine man should know something about ophthalmology. As a man who begins the practice of ophthalmology cannot be expected to know as much as he will in five years, it is suggested that two degrees might be given, one corresponding to the Bachelor's degree in art, and another five years later.

Dr. Allen Greenwood said that the sixth sense as to the patient's general condition, acquired in general practice, is of the greatest value in watching old people after operative interference. He thought a boy's fingers should be trained in boyhood, his powers of observation in early youth, and after hospital and bedside practice for a year or two he might then go out to do his special work.

Dr. Keiper, of Lafayette, Ind., said that the most useful man in the community is he who prepares himself for a life work, not for a living, and this was applied to the profession under discussion.

Dr. Taylor, of Wilkesbarre, Pa., said that in his state, after January 1st, 1914, the law will require every one enter-

ing into the practice of medicine shall have had four years of preparation and one year in hospital practice before receiving a license, and he thought the hospital period was the proper time for him to decide on his special work, not during his premedical studies; but he should very early shape his medical studies to a special end. One should have first of all as much general work as he can get.

Dr. Tuckerman, of Cleveland, said that he understood Dr. Jackson to mean that when a person has made up his mind to go in this line, he shall begin to direct his reading along that line, and not to preclude general practice. But if one starts in the beginning to follow a certain line and then finds himself unfitted, he will have to take a step backward.

Dr. Jackson, closing the discussion, said he had advocated the full medical work and at least one year of practice, but that the educational scheme should enter into special channels. If it is discovered what the boy is vitally interested in, he will go at his studies in a different way and have a different result. It is not a question of whether one has had one or two years of medical practice, but rather whether he has had broad interests and follows up these interests by attending the general medical societies, as has been suggested, and reading medical journals. These things will determine whether a man shall be broad or narrow in the practice of his specialty.

Eye Strain from Faulty Illumination.

In a paper on "Eye Strain from Faulty Illumination," Dr. Walter B. Lancaster, of Boston, considered the factors determining the effects of artificial light on the eye as wave length, which he considered as relatively unimportant; intensity, as unimportant, and distribution, which latter is most important, and in this he included the intrinsic brilliancy of the source (direct and indirect), direction, shadows and glare.

(To be continued.)

In the reorganized department of Ophthalmology of the College of Medicine of the University of Illinois, Junior instruction will be given by Assistant Professors Loring and Findlay. The senior instruction will be given during the first semester by Professor Casey Wood. An ophthalmic clinic, given daily during the whole year, will be conducted by Associate Professor Gamble, and Assistant Professors Loring and Findlay, and their assistants.

NEWS AND NOTES.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison Streets, Chicago, Illinois.

As these columns go to press on the 15th of the month previous to publication, contributors will kindly send in their items before that date.

The New York Eye and Ear Infirmary recently received a donation of \$25,000.

Dr. Sylvester Rush Weaver, an ophthalmologist of Sherman, Texas, died recently in that city, aged 41.

Dr. Christian R. Holmes has been elected Dean of the Medical Department of the University of Cincinnati.

Captain Edward M. Talbot has been assigned to duty at the Army Medical School as assistant professor of Ophthalmology.

Dr. Harry Friedenwald of Baltimore was in charge of the arrangements for the banquet given in honor of Dr. Nathaniel Keirle of that city, on October 11th.

Dr. David W. Stevenson, of Richmond, Ind., was elected treasurer of the Indiana State Medical Association at the Annual Meeting, held September 24th, at West Baden.

Mr. Henry Kimpton, 263 High Holborn, London, W. C., England, has a very fine copy of G. Lindsay Johnson's COMPARATIVE ANATOMY of the MAMMALIAN EYE in half morocco, which he will sell for \$11.25.

The Maryland School for the Blind, which has been recently completed, is located at Overlea, Md. The institution is built on the cottage plan, having four cottages, each with accommodations for thirty pupils, several teachers and the house matron.

The ex-internes of the Illinois Charitable Eye and Ear Infirmary in Chicago have formed an association. They will hold an annual reunion. An appropriate emblem has been selected and will be presented to each man who completes his term of service in the hospital.

Professor Dr. Theodor Axenfeld, Director of the eye clinic in Freiburg, has accepted the invitation of Dr. Frank Todd, of Minneapolis, Chairman of the Section of Ophthalmology of the American Medical Association, to be the guest of the Section at Atlantic City in June, 1914.

Dr. W. A. Fisher, of Chicago, writes from Simla, India, telling of a delightful and interesting trip. Dr. and Mrs. Fisher were the guests of Major Frederick Maynard of the Indian Medical Service while in Calcutta. Amritsar and Col. Smith's intracapsular operations are the goals of Dr. Fisher's journey.

Dr. Chas. E. Michel, one of the oldest ophthalmologists of St. Louis, died at his home in that city September 29th, aged 80. He was professor of ophthalmology in the Missouri Medical College for many years and also on the staff of the St. Louis Eye, Ear, Nose and Throat Infirmary. He was one of the first to discard the barbarous practice of keeping cataract patients in a dark room after operation.

STAFF APPOINTMENTS, COOK COUNTY HOSPITAL, CHICAGO, ILL.

By examination open to citizens of the United States; appointments for six years; service continuous throughout the year; no salary; this hospital admits 34,000 patients yearly; reorganized on the highest grade of the foremost American and European hospitals; examination December 22, 1913, in the Department of the Eye. Address Cook County Civil Service Commission, Chicago, Ill.

Vision Conservation Society Formed.—Acting under auspices of the commission appointed by the Medical Society of the State of Pennsylvania, laymen and doctors have formed the Pennsylvania Society for the Conservation of Vision.

Aroused by learning that this country has 100,000 blind people, an active campaign is under way against ophthalmia neonatorum, needless eye injuries in the trades, trachoma, wood alcohol, wrong lighting of buildings and like causes. In addition to a large number of distinguished laymen, acting as advisory members, the Commission on Conservation of Vision includes Dr. Wm. Campbell Posey, Wills Eye Hospital, Philadelphia; chairman; Dr. Wm. W. Blair, University of Pittsburgh, Pittsburgh, Pa.; Dr. Clarence P. Franklin, Philadelphia; Dr. C. M. Harris, Johnstown, Pa.; Dr. Edw. B. Heckel, Pittsburgh, Pa.; Dr. T. B. Holloway, University Hospital, Philadelphia, secretary; Dr. Wendell Reber, Temple University, Philadelphia; Dr. Edward Stieren, Pittsburgh, Pa.; Dr. Lewis H. Taylor, president of State Society, Wilkes-Barre, Pa.; Dr. Wm. Zentmayer, Wills Eye Hospital, Philadelphia; Dr. Samuel G. Dixon, Commissioner of Health of the State of Pennsylvania, Harrisburg, Pa., honorary chairman. Membership, costing \$1 a year, is asked from all persons, and the secretary may be written to direct.—(JOUR. A. M. A.)

The Royal Hungarian Minister of the Interior has offered a prize of 1000 kronen for the best work on the aetiology of trachoma. The condition is that the original work shall mark a valuable step forward. All papers must be sent in on or before June 30th, 1914 (address: Budapest, I, Var. Belügy-ministerium).

Papers which have appeared in print in 1913 or 1914 may also be submitted. The authors may employ the Hungarian, German, French or English language.

The jury will be nominated by the Royal Hungarian Minister of the Interior. The judgment of the jury will be published at the International Ophthalmological Congress at St. Petersburg in 1914.

Dr. Emil von Grösz,

Government Commissioner on Trachoma.

The Herman Knapp Memorial Eye Hospital has opened its doors in its new location, at the southwest corner of 57th Street and Tenth Avenue, New York.

The hospital was founded in 1869 by the late Dr. Herman Knapp, and under the name of the "New York Ophthalmic & Aural Institute" it has been in uninterrupted activ-

ity at 44 and 46 East 12th Street. During these forty-four years over 420,000 patients have been treated. The new building is a specially constructed seven story fire-proof hospital building, with complete modern equipment for the treatment and study of diseases of the eye.

The board of Trustees has deemed the occasion of its removal to a new building in a new location the proper time to change the name of the Institute in honor of its distinguished founder.

Dr. Moreau of Saint-Etienne reports in the *Loire médicale* the history of a child of 8, born blind, who was operated on in his service for complete bilateral cataract. Until entering the hospital, the child had lived at home with his father, a poor peasant, and had received no education whatever. It was an anxious moment when, a week after the operation, the bandage was removed from the eyes. But the child, on being able to see for the first time, made simply a few meaningless sounds. The bandage was replaced, and the trial repeated two days later. The child again showed no emotion. As each object was shown to him after he had touched it so that he knew it perfectly well, he said that he did not know what it was. It took many days for the child to acquire an idea of colors, but when he did, the color-concept assumed an abnormal significance, and everything was interpreted from this point of view. Whatever object was shown to the child was white or black according to whether it faced the light or was in shadow. He analyzed everything that he saw into colored spots. Each new thing that he learned, however, was of use in appreciating things that came after: thus, when the child learned that an object was a box, everything empty that he could stick his hand into was for him a box: his drinking-cup, his cap, his boots, etc. Whenever he wished to take hold of anything he acted as one does who can see, but in grasping it he relied more on the sense of touch than he did on sight. He had no sense of space. He tried to touch lamps which were a hundred feet away. He mistook the moon for one of the latter. He reached for the stars. Fifteen months after his entrance into the hospital he could not read, in spite of the efforts of the nun who took care of him to teach him the alphabet. Then his father took him away. Dr. Moreau saw the child a year later. He had remained at home without

further education, had learned nothing new, and had forgotten most of what he had picked up while at the hospital.—(Jour. A. M. A.)

The recent Clinical Congress of Surgeons held in Chicago, demonstrated the great popularity of this method of demonstrating work as compared with the mere reading of papers. About 5,000 men attended the Congress and overtaxed all facilities. Every hospital staff in the city had been reserving cases not requiring immediate operation, and all the surgery possible was shown. The enormous crowds, however, made the clinics unsatisfactory to the majority.

The Chicago Ophthalmological Society held a notable meeting on Monday, November 17th, immediately after the closing of the Clinical Congress. A reception and banquet was given in honor of four prominent visitors: Lt.-Col. Robert H. Elliott, Madras; Dr. Edward Jackson, Denver; Dr. Geo. E. deSchweinitz, Philadelphia, and Dr. John E. Weeks, New York. The program presented was a symposium on Glaucoma, and papers were presented by the society's guests and by Dr. Casey Wood of Chicago.

NEW BOOKS.

The Etiology of Optic Nerve Lesions in Tabes and Progressive paralyses. By Prof. Dr. Stargardt, Privatdozent in Ophthalmology, University of Kiel. Four plates. Published by August Hirschwald, Berlin, 1913. Price M. 8.

Compendium of Ophthalmology. By Dr. V. Morax, Ophthalmologist to the Lariboisière Hospital, Paris. Second Revised Edition, with 427 illustrations in the text and four colored plates. Published by Masson et Cie, 120 Boulevard Saint-Germaine, 1913.

Guide to the Microscopical Examination of the Eye. By Prof. R. Greef, Berlin, in co-operation with Prof. Stock, Freiberg, and Prof. Wintersteiner, Vienna. Translated from the third German edition by Hugh Walker, M. A., M. B., C. M., Glasgow. Published by The Ophthalmoscope Press, Thayer Street, W., London. Price 7/6 net.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.) G. W. Mahoney (Poli.)	*Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.) Brown Pussey, N.W.U. Every day, 10-12 A.M.	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E.E.N.T.) M. H. Levensohn (Inf.) Willis O. Nance (Inf.) W. H. Findlay (Inf.) Wm. E. Gamble (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Inf.) N. E. Remmen (Inf.) F. B. Loring (Inf.) Wm. H. Wilder (Inf.) F. A. Phillips (Inf.) H. B. Williams (Inf.) M. H. Levensohn (P.&S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) F. B. Loring (Inf.) Wm. H. Wilder (Inf.) F. A. Phillips (Inf.) H. B. Williams (Inf.) M. H. Levensohn (P.&S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) E. J. Gardner (E.E.N.T.) M. H. Levensohn (Inf.) Willis O. Nance (Inf.) W. H. Findlay (Inf.) Wm. E. Gamble (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Inf.) N. E. Remmen (Inf.) F. B. Loring (Inf.) Wm. H. Wilder (Inf.) F. A. Phillips (Inf.) H. B. Williams (Inf.) M. H. Levensohn (P.&S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) F. B. Loring (Inf.) Wm. H. Wilder (Inf.) F. A. Phillips (Inf.) H. B. Williams (Inf.) M. H. Levensohn (P.&S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) F. B. Loring (Inf.) Wm. H. Wilder (Inf.) F. A. Phillips (Inf.) H. B. Williams (Inf.) M. H. Levensohn (P.&S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) F. B. Loring (Inf.) Wm. H. Wilder (Inf.) F. A. Phillips (Inf.) H. B. Williams (Inf.) M. H. Levensohn (P.&S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P.&S.)	H. H. Brown (Ills. Med.)	*J. F. Harper (P.&S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P.&S.)	W. Allen Barr (C.C.S.)	W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pussey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street. E. E. N. T.: Chicago Eye, Ear, Nose and Throat Clinic, Washington and Franklin Streets. Clinics all day.	County: Cook County Hospital, W. Harrison and Honore Streets. Ills. Med.: Illinois Medical College, 182 Washington Blvd. Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	Poli.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue. P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street. N. W. U.: Northwestern University, 2431 Dearborn Street.	Rush: Rush Medical College, W. Harrison and Wood Streets. St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
---	--	--	--

RE
1
04
v.22

The Ophthalmic record

Biological
& Medical
Serials

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY
